



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

July 7, 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 is a partial response and enclosed is a CD with 227 documents from January 1, 2009, through June 24, 2010, located in the files of the Office of River Protection. Also enclosed are the documents located in the files of the Richland Operations Office.

We have located additional documents responsive to your request and are currently reviewing them for a disclosure determination. As you may know, the FOIA provides that an agency respond to requests within twenty working days. However, the FOIA permits an agency to extend the time limit to respond to a request in certain circumstances. These circumstances include the need to collect records from other locations, review large number of records, and consult with other offices. Due to the large amount of information requested, additional time will be needed to review the documents. We will notify you when our review is complete.

Lastly, you requested a waiver of fees for your request. Your request is granted.

Mr. Tom Carpenter

-2-

July 7, 2010

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

Sincerely,

-Original Signed By-

Dorothy Riehl
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

09-SED-0041

JAN 22 2009

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 – ENGINEERING PROGRAM/PROCEDURES
(S-09-SED-PRC-004)

The purpose of this letter is to transmit RL Surveillance Report S-09-SED-PRC-004 dealing with a review of the CHPRC contract and the CHPRC Engineering Program/Procedures. The Program/Procedures were evaluated against 10 CFR 830, 10 CFR 835, and DOE Order requirements in the contract. No concerns, findings, or observations resulted from this surveillance activity. Based on the results of this Surveillance Report, there are no actions required on your part. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, 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:JBG

Attachment

cc w/attach:
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
DNFSB

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

Division: Safety and Engineering Division (SED)

Surveillant: Jack George (SED)

Surveillance Number: S-09-SED-PRC-004

Date Completed: December 15, 2008

Contractor: CH2M HILL Plateau Remediation Company LLC (CHPRC)

Facility: N/A

Title: Engineering Program/Procedures

Guide: N/A

Surveillance Scope:

The surveillance was performed to evaluate how well the contractor's Engineering Safety Program/Procedures meet their contractual requirements.

Surveillance Summary:

The surveillance consisted of a review of the CHPRC contract and the CHPRC Engineering Program/Procedures, not observance of field work. Oversight of fieldwork is scheduled later in the year in accordance with the Fiscal Year (FY) 2009 RL Integrated Evaluation Plan. The Program/Procedures were evaluated against 10 CFR 830, 10 CFR 835, and DOE Order requirements in the PRC contract.

The assessor reviewed the following documents:

10 CFR 830, Nuclear Safety Management, Code of Federal Regulations

10 CFR 835, Occupational Radiation Protection

DOE O 420.1B, Facility Safety, Contractor Requirements Document (CRD)

DOE/RW-0333P, Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description

Letter, #9104627B, J. D. Wagoner, DOE-RL, to W. R. Wiley, PNL, and T. M. Anderson, WHC, "Periodic Status Reporting on the Development of Safety Equipment Lists and Safety Class Evaluation Sheets," September 13, 1991"

DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities

DOE O 414.1C, Quality Assurance
DOE G 420.1-1, Nonreactor Nuclear Safety Design Criteria and Explosives Safety Criteria
Guide for Use with DOE O 420.1, Facility Safety
DOE-STD-1073-2003, DOE Standard Configuration Management, U.S. Department of Energy,
Washington, D.C.
DOE/RL 2002-12, Hanford Radiological Health and Safety Document
EIA-649-1998, National Consensus Standard for Configuration Management.
HNF-RD-10484, Nondestructive Assay Management Program
HNF-RD-1819, PHMC Engineering Requirements
HNF-RD-19440, Design, Inspection, Testing and Repair of ASME-Coded Pressure Systems and
Safety Relief Valves
HNF-RD-32801, Value Engineering
HNF-PRO-090, Excavating, Trenching, and Shoring
HNF-PRO-097, Engineering Design and Evaluation (Natural Phenomena Hazard)
HNF-PRO-10337, Post-Natural Phenomena Hazard Building Inspections
HNF-PRO-129, Controlling Spare Parts Inventory
HNF-PRO-14616, Resolving Dissenting Technical Opinions
HNF-PRO-16331, System Engineer Program
HNF-PRO-16406, Engineering Vendor Information (VI) Process
HNF-PRO-2001, Facility Modification Package Process
HNF-PRO-20050, PHMC Engineering Configuration Management
HNF-PRO-20051, PHMC Engineering Selection, Qualification, and Training
HNF-PRO-20052, Design Authority Program
HNF-PRO-24208, HEPA Filter System Degradation Evaluation Process
HNF-PRO-286, Testing of Equipment and Systems
HNF-PRO-440, Engineering Document Change
HNF-PRO-489, Third Party Inspections
HNF-PRO-709, CAD and Drawing Development and Control Process for Engineering Drawings
HNF-PRO-8016, Design Change Notice Process
HNF-PRO-8017, As-Built Verification Process
HNF-PRO-8258, Functional Design Criteria
HNF-PRO-8259, PHMC Calculation Preparation and Issue (Including OCRWM)
HNF-PRO-8323, Management of HEPA Filter Systems
HNF-PRO-8336, Design Verification
HNF-GD-11851, PHMC Engineering Guidance
HNF-GD-33553, Engineering Implementation of the Graded Approach for Procurement of
Materials and Services
HNF-GD-8004, Functional Requirements Document
HNF-MP-599, Quality Assurance Program Description
HNF-RD-8310, Document Control Program
HNF-RD-9118, Fire Protection Design/Operations Criteria
HNF-RD-15332, Environmental Protection Requirements
Project Hanford Management Contract (PHMC) DE-AC06-96RL13200, Section J, Appendix C.
HNF-5173, PHMC Radiological Control Manual
HNF-7098, Criticality Safety Program
HNF-14660, Off-Site Vendor Instructions for Preparation and Control of Engineering Drawings.

The assessor found that in general, the PRC Engineering Program/Procedures are in accordance with the requirements in the PRC contract.

Surveillance Results:

No concerns, findings, or observations resulted from this surveillance activity.

Contractor Self-Assessment:

CHPRC has not performed any self assessments regarding Electrical Safety Program/Procedures since the analysis performed for the recent contract change.

Contractor Self Assessment Adequate: YES NO

Management Briefing:

Charles Kronvall, PRC



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

09-OOD-0010

FEB 04 2009

Mr. John 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 – DOE-RL CORE SURVEILLANCE OF CHPRC
QUALITY ASSURANCE (QA) PROGRAM**

During the week of November 17, 2008, a team of RL staff and Facility Representatives performed targeted oversight of the CHPRC QA program. The oversight resulted in the identification of Two Good Practices, Three Findings, and 14 Observations. Overall, the oversight indicated the adopted CHPRC QA program is adequately implemented, although the self-identified need for improvements in the Software Quality Assurance (SQA) program were further verified by RL staff. CHPRC staff is working to address the SQA deficiencies; however, the necessary actions have yet to be documented or captured in an action plan. It is also noted that the revised CHPRC Integrated Evaluation Plan (IEP) has apparently reduced the quantity of management and independent assessments scheduled for fiscal year 2009, with the independent assessments focused exclusively on Integrated Safety Management. It is not clear to RL how the CHPRC organizational structure impacts are addressed in the CHPRC assessment strategy. RL will monitor the rigor and effectiveness of these two key quality assurance elements as CHPRC establishes its own management system infrastructure and RL looks forward to discussing the CHPRC strategy in the periodic RL/CHPRC IEP meetings.

You are requested to process the Findings and Observations from the attached report through the CHPRC corrective action management process. Furthermore, provide the SQA action plan and associated schedule that CHPRC will implement to establish a compliant SQA program within 60 days of receipt of this letter. The actions associated with all three findings require closure by the applicable RL Lead Assessor. The observations are provided for CHPRC information and use in issuing and implementing the CHPRC QA program description.

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.

Mr. John G. Lehew III
09-OOD-0010

-2-

FEB 04 2009

If you have any questions, please contact me, or your staff may contact Ray J. Corey, Assistant Manager for Safety and Environment, on (509) 376-0108.

Sincerely,



Jenise C. Connerly
Contracting Officer

OOD:RMI

Attachment:

1. Surveillance S-09-OOD-CHPRC-001

cc w/attachs:

D. B. Cartmell, CHPRC
G. M. Grant, CHPRC
S. M. Kelley, CHPRC
M. R. Kembel, CHPRC
P. M McEahern, CHPRC
S. J. Turner, CHPRC

**DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
CORE SURVEILLANCE OF CH2M HILL PLATEAU
REMEDATION COMPANY LLC
QUALITY ASSURANCE (QA) PROGRAM**

S-09-OOD-CHPRC-001

Mat Irwin, Team Lead	<u>Mat Irwin 12/2/08</u>
Clark Gunion, MA, Asst. Team Lead (Management Assessment, MA)	<u>Clark Gunion 12/4/08</u>
Al Hawkins, IA, QA quals (Independent Assessment)	<u>Al Hawkins 12/5/08</u>
Steve Chalk, Procurement	<u>Steve Chalk 12/4/08</u>
Ed MacAlister, Procurement	<u>Ed MacAlister 1/22/09</u>
Krishna Vadlamani, Sub. flowdown	<u>Krishna Mohan Vashamman 1/22/09</u>
Cliff Ashley, Software QA	<u>Cliff A. Ashley 1/22/09</u>
Kyle Rankin, Software QA	<u>Kyle M. Rankin 12/4/08</u>

FR Participants for Section 4.1, 4.3 and 4.5: S. Dickinson, S. Trine, K. Schierman, J. Spets, D. Splett, R. Johnson, D. Humphreys

EXECUTIVE SUMMARY

The Department of Energy, Richland Operations Office (RL) performed surveillance of CH2M HILL Plateau Remediation Company LLC (CHPRC) Quality Assurance (QA) program implementation on the Plateau Remediation Contract (PRC). The PRC workscope continues the environmental cleanup of select portions of the Hanford Site. The PRC, along with the Mission Support Contract (MSC) will replace the Project Hanford Management Contract, held by Fluor Hanford Inc. (FHI). The RL surveillance team consisted of Facility Representatives and Subject Matter Experts (SME) from the office of the Assistant Manager for Safety and Environment (AMSE). The oversight team utilized a surveillance format to determine efficacy of sampled portions of CHPRC in transition from the previous contractor, Fluor Hanford Inc., (FHI) who administered the Project Hanford Management Contract (PHMC).

Overall, the sampling taken by RL team members indicated the adopted Quality Assurance Plan (QAP) was being implemented by CHPRC, with the exception of Software Quality Assurance (SQA). Team members observed that steps were being taken to develop a CHPRC QAP and associated implementing processes. Accordingly, some opportunities for improvement existed for establishing the CHPRC Integrated Safety Management System (ISMS) / QAP.

The surveillance resulted in three Findings, fourteen Observations and two Good Practices. Identified practices / issues were as follows:

Good Practices

- Use of Hazard Review Board (HRB) strengthened Safety Health & Quality (SH&Q) work practices at CHPRC Projects.
- Waste & Fuels Modification to yearly training form to require supervisory review and certification of personnel training plans for adequacy.

Findings

- **S-09-OOD-CHPRC-001-CC-F01:** CHPRC has not established or documented responsibilities, authorities, or interfaces for decentralized QA staff.
- **S-09-OOD-CHPRC-001-CC-F02:** The CHPRC SQA program had not ensured that PRC-MD-001 was adequately implemented for their safety software.
- **S-09-OOD-CHPRC-001-CC-F03:** The implementation of HNF-PRO-309 Rev. 6 by the CHPRC Chief Information Officer, Software Owners and Software SMEs is inadequate.

Observations

- **S-09-OOD-CHPRC-001-CC-O01:** The CHPRC SQA program has assigned some software to managers with vital responsibilities.

- **S-09-OOD-CHPRC-001-CC-002:** A large reduction in IEP commitments has occurred without apparent justification.
- **S-09-OOD-CHPRC-001-GPP-003:** Document reference discrepancies were identified in the Soil and Groundwater Remediation Project (GRP) Quality Assurance Project Plan (QAPP).
- **S-09-OOD-CHPRC-001-GPP-004:** The Integrated Training Electronic Matrix (ITEM) training requirements for Soil and GRP health and safety professionals were not reflective of the areas for which the individuals have oversight responsibility, and in general, the project could not provide one-stop training requirements plans for various project positions.
- **S-09-OOD-CHPRC-001-KBC-005:** The 100K QAPP is out of date.
- **S-09-OOD-CHPRC-001-PFP-006:** The Plutonium Finishing Plant (PFP) Watch Procedure was cancelled despite the recent inception in response to DOE findings.
- **S-09-OOD-CHPRC-001-PFP-007:** Potential impact observed at PFP for timely completion of current PFP IEP requirements.
- **S-09-OOD-CHPRC-001-W&F-008:** T-Plant Staffing Plan not updated after CHPRC transition particularly with respect to the Quality Assurance Engineer (QAE) position.
- **S-09-OOD-CHPRC-001-W&F-009:** HNF-14503, Waste Retrieval Project QAPP is out of date and required actions have not been completed.
- **S-09-OOD-CHPRC-001-W&F-010:** Solid Waste Operations Complex (SWOC) Training performance indicators could be improved.
- **S-09-OOD-CHPRC-001-W&F-011:** Lack of Management Assessments for the startup of significant new SWOC activities.
- **S-09-OOD-CHPRC-001-W&F-012:** System for tracking SWOC training program reviews could be beneficial.
- **S-09-OOD-CHPRC-001-D4-0013:** Deactivation and Decommissioning (D&D) Integration Evaluation Plan for Fiscal Year (FY) 09 needs updating of assessors.
- **S-09-OOD-CHPRC-001-D4-014:** Procedure HNF-GD-12116 missing from 10CFR830.122 & ISMS Crosswalk Table for D4.

1.0 Scope of Surveillance

In accordance with the August 2008 Transition Safety Oversight Plan for CHPRC (AMSE-C-2008-0016), AMSE personnel evaluated the transition contractor's administration of its inherent QA Program. Performance of this evaluation required a team of RL Facility Representatives (FRs) and SME. The task evaluated seven core areas to determine the effectiveness of the contractor's ability to take on and administer an existing program without losing proficiency. The seven areas of evaluation were:

- ✓ CHPRC Assessment processes and Integrated Evaluation Plan (IEP) implementation (Independent, Management, QA Surveillances, etc.).
- ✓ Roles and responsibilities for project assigned QA engineers and their interface with the SH&Q organization.
- ✓ Training and qualifications for select functions (technical & management).
- ✓ Procurement and Acquisition Verification Services (AVS) (staffing, quals, functionality).
- ✓ Work processes and procedures from the standpoint of revision and cancellation of PHMC procedures and how they are managed by CHPRC.
- ✓ Subcontractor flow down of requirements.
- ✓ Software QA.

This surveillance was planned to provide lines-of-inquiry to assess CHPRC in the early stages of its administration of the QA Program. The surveillance provided a basis for examining the effectiveness of existing contractor programs and evaluating whether implementation of the programs complied with applicable DOE requirements.

The surveillance was performed during the week of November 17, culminating with an out-briefing of issues to CHPRC on Monday, November 24.

2.0 Summary of Results

IEP Implementation

Surveillance interviews of the newly formed QPA Division's supervisory and staff personnel determined that most were former employees of the PHMC and fulfilled similar roles and responsibilities under the new PRC. All interviewees were experienced at assessment and surveillance methodologies. Staffing had been largely reduced as compared to the previous contract while taking on additional responsibilities. For example, according to one of the QA engineers, requirements documents / directives have increased from 200 to 221 under the new contract. (OA20454)

According to the Manager of the Performance Oversight organization of the QPA, the IEP was evaluated and numbers of oversight activities reduced by the individual CHPRC projects. Further evaluation by QA personnel resulted in cuts to activities as being "out-of-scope" and determined to be the responsibility of the Mission Support Contractor (MSC) which, as of this writing, had yet to be named. (OA20531)

Surveillant review of the IEP, as inherited by CHPRC, on October 1, 2008, and as revised on November 20, 2008, determined that the numbers of Management Assessments (MA), Surveillances (S) and Independent Assessments (IA) were greatly reduced even after accounting for the reduction in scope from the previous contractor. The surveillant requested justification for the reductions but it is not clear that the current IEP will be adequate to support strong independent and management assessment programs. (CC-O02)

QA Engineer Roles and Responsibilities

The surveillant interviewed QA management and staff and visited work locations for decentralized QA staff, reviewed recent work products and discussed interface, changes in job responsibilities, and QA efforts under the new contract. The surveillant reviewed several surveillances conducted since contract turnover and evaluated content, quality, and consistency of product. The surveillant examined documentation used to recertify both QA engineers and Quality Control (QC) inspection staff and available versions of the IEP. To establish how QA was organized and authorized, the surveillant examined available position descriptions, organization charts, and performance evaluation requirements. The surveillant held follow-up meetings with management to discuss issues and confirm pertinent documentation was evaluated.

The surveillant found that in establishing its new organization, CHPRC decentralized the QA function, and assigned previously centralized QA resources to the project organizations. This action raised issues of independence and created the need for checks and balances to ensure continued independence of QA activities. Required checks and balances were not found. CHPRC had not established or documented responsibilities, authorities, or interfaces for decentralized QA staff. This failed to meet Criterion 1 of DOE Order 414.1C and was documented as a finding. (CC-F01) (OA20488)

Procurement and the Acquisition Verification Service (AVS) interface

Surveillance team members interviewed CHPRC and PHMC Prime (Fluor Prime contract personnel assigned to AVS) personnel to evaluate the status of CHPRC Procurement and interface with AVS. A draft SOW was provided that described the AVS role and its implementation to support CHPRC. In addition, CHPRC issued a variance against HNF-PRO-268 to address the fact that CHPRC had to create an Evaluated Suppliers List (ESL) defining PHMC Prime as an acceptable, evaluated contractor. All other vendors/suppliers were managed by AVS in the same manner as managed by the PHMC. These two actions provided the necessary contractual and procedural changes to support continued use of AVS by CHPRC.

The surveillants interviewed AVS personnel to evaluate procurement management in accordance with existing procedures using the Passport software system. It was apparent that the transition to CHPRC was completely seamless to AVS since procurements were managed using Passport. AVS personnel demonstrated adequate competence to support ESL management and processing of procurement documentation to ensure receipt of

materials and equipment in accordance with CHPRC established specifications and inspection requirements. A review of sample purchase orders, Nonconformance Reports (NCRs), and Quality Assurance Inspection Reports (QAIP) demonstrated that documentation was rigorously maintained and implemented in accordance with established requirements. AVS established processes to self-assess documentation quality and ensured continued rigorous implementation of requirements. Inspection personnel demonstrated a questioning attitude and awareness of Suspect/Counterfeit Parts and the need for Nationally Recognized Testing Laboratory (NRTL) labeling for electrical components. (OA20481, 20492)

A surveillance tour was conducted of the 1163 Warehouse and review of material receipt packages. The PHMC Prime remained responsible for AVS services until the MSC contract was let. One package reviewed included receipt of High Efficiency Particulate Air filters. The item's quality level, determined by the Design Authority (DA), was verified in the "Passport" system and correctly transferred to the item receipt package. The QAIP, also generated by the DA, included receipt inspection requirements necessary to verify the purchase order requirements for design, fabrication, and testing were met. A pump was inspected that contained a red hold tag NCR located in the warehouse hold area. The pump had questionable shipping damage and required evaluation by the DA before NCR disposition. Other items in the hold area required additional inspections prior to being released for use. The warehouse was a controlled access area. AVS was notified by the DA when source inspection was required. AVS inspectors used a QAIP to perform source verifications at vendor facilities. The QAIP contained critical or important acceptance parameters and "hold-points" for item inspection. AVS personnel that travel to vendor facilities were qualified per HNF-PRO-263. Receipt documentation packages assembled at the receiving warehouse were used to verify the material received contained source inspection documentation.

The process for identifying Suspect/Counterfeit Items (S/CI) was reviewed. The S/CI process was controlled by HNF-PRO-301. All receipt inspectors had mandatory annual retraining and every three years participated in classroom training that included a practical test. Potential S/CI items were identified, segregated, and restricted at the warehouse. (OA20468)

Based upon this surveillance, the AVS organization was mature and minimally affected by CHPRC transition. AVS processes were established and expected to consistently procure and inspect materials and equipment in accordance with the specifications, clauses and requirements provided by site customers.

Subcontractor Flow-down of Requirements

The DEAR Clause, 970.5223-1, incorporated into the PRC integrates environment, safety, and health into work planning and execution. CHPRC is responsible for flowing down the Environmental Safety & Health (ES&H) requirements applicable to the contract to subcontracts at any tier to the extent necessary to ensure the contractor's compliance with the requirements.

A review of CHPRC processes and procedures (adopted from FHI, incumbent) including General and Special Contract Provisions, confirmed that CHPRC had controls in place to flow down ES&H requirements in the subcontract documents issued subsequent to October 1, 2008, when CHPRC was authorized by RL to start the work at Hanford Facilities. (OA20438)

A review of CHPRC sub-contract documentation related to Lockheed Martin Services Incorporated (LMSI) (for managing & operating the Solid Waste Information Tracking System (SWITS), # 36193-Release 36, dated October 2, 2008), and Parsons Hanford Fabricators Incorporated (PHFI) (for Fabrication Services, # 36578, dated October 16, 2008) was reviewed. In addition, a review of the corresponding subcontractor QA Manual approval documentation and CHPRC/FHI personnel interviews were performed to verify flow down of requirements from CHPRC to subcontractors was occurring. (OA20471, QA20503)

Based on the above reviews, it was concluded that CHPRC had flowed down applicable requirements to its subcontractors LMSI and PHFI satisfactorily and there was reasonable assurance for continued satisfactory performance by CHPRC in flowing down requirements to subcontractors.

Software Quality Assurance

During PRC transition, potential issues (#27 and 60) were identified by CHPRC related to an inability to confirm SQA compliance for software transferred from the previous contractor to CHPRC. Communications between RL and CHPRC occurred prior to the transition to quantify the potential issues and the material difference process is still in progress. This surveillance evaluated SQA progress following transition and how CHPRC will establish compliance for the safety software in use.

Following transition it appeared that CHPRC had commenced actions to address SQA for the complete array of CHPRC software. To date, CHPRC SQA program management had not adequately identified all the safety software they should manage, nor establish lines of authority and communications with the associated Software Owners and Software SMEs. Also, after several interviews and review of supporting documentation, it was apparent that full implementation of HNF-PRO-309 had not been achieved and an action plan has yet to be documented to describe the actions and schedule necessary to support full compliance.

During the surveillance period the CHPRC SQA program management and staff took swift action to address issues. The CHPRC SQA Program Manager was found to be knowledgeable, experienced, and qualified to manage a successful SQA program. During this surveillance the SQA Program Manager recognized that HNF-PRO-309 and the Hanford Information System Inventory (HISI) needs to be improved and revised to grade safety software at three levels (per DOE G 414.1-4) instead of just using two levels, and to re-evaluate all CHPRC software to determine if any additional software

needs to be managed as safety software. Based upon the breadth and complexity of the issues and discussions with CHPRC staff, a more systematic, documented approach to prioritize and address the issues is warranted.

Some CHPRC Software Owners have the primary responsibility as a manager of large organizations. During the surveillance it was apparent in one case that the primary responsibility as manager did not allow adequate time for their secondary responsibility as Software Owner and caused software to not be adequately documented within HISI (CC-O01).

Project Evaluation

Plutonium Finishing Plant (PFP)

The surveillant interviewed the Quality Assurance Lead and reviewed the Quality Assurance Policy, Draft Quality and Performance Assurance Action Plan, FY09 IEP Assessment Report, Safety Management Plan Schedule, and FY08 completed Management Assessments. The Quality Assurance Lead appeared to be actively participating in coordination of the program transition. Although the project appears to be actively attempting to track and execute the IEP to ensure compliance is maintained, potential impacts were observed that may impact timely completion (PFP-O07). (OA20545)

The surveillant reviewed PFP training procedures, training plans and course completion records from the ITEM. Management at the Project and PFP specific level staff appeared to have completed minimum requirements to access the facility. Training plans were reviewed annually at a minimum but were typically reviewed more frequently based on programmatic and process changes occurring. Many Employee Job Task Analysis, were being developed for new or reassigned personnel such that training plans can be generated and courses scheduled. Per the Project, scheduling training courses at this time had been challenging; not enough courses were offered to support the influx of personnel and/or assignment changes. To support continuing training and qualification, the PFP Training Administrator issued 60 and 90 day Ticklers to assist in maintaining training qualifications and minimize delinquency. The project was actively developing training plans, scheduling personnel, and tracking training needs. (OA20548)

The surveillant reviewed the PFP procedure reduction process that began with PFP administrative procedures and inactive technical procedures. There were more than 100 inactive technical procedures that were evaluated and cancelled. CHPRC staff committed to keeping retrievable records for cancelled procedures to support development of a new procedure if a process covered by a cancelled procedure was needed in the future. All of the other procedures have been evaluated through a process that determined if the procedure was needed. As of November 20, evaluation of the procedures through the level II manager was nearly completed. The next step was to communicate the results to the PFP and balance of plant project manager. One example of a change was related to cancellation of the PFP watch program. The surveillant was aware that there were plans

to cancel the procedure because the surveillant heard personnel assigned to perform the watch question whether or not the procedure had been cancelled at the 0630 morning management meeting at PFP. At the October 22, RL interface meeting the surveillant informed CHPRC management that enhancements to the watch program had played a part in the closure of the PFP portion of the EM-62 ISMS assessment. On November 20, the FR reviewed the EM-62 corrective actions and concluded that 12 of the 70 actions identified in response to the five conduct of operations findings for PFP were related to the Senior Watch (**PFP-O06**). (OA20537)

The surveillant was aware that CHPRC management communicated their commitment to reduce the number of procedures at PFP. The surveillant had been briefed on the process ongoing to evaluate PFP procedures for potential cancellation on October 22, and on November 18, 2008. The watch procedure cancellation appeared to be independent from the ongoing procedure evaluation process.

Balance of Site (BOS)/D-4

The surveillant reviewed project-level work processes and procedures from the perspective of applicability, revision, and cancellation for CHPRC applicability, with special emphasis on QA procedures and/or QA implementation procedures identified in the D&D Project QAPP, HNF-20911, Revision 4.

The surveillant reviewed the FY09 IEP to assess FFTF and D&D participation. The number and type of assessment/surveillance activities appeared adequate for D&D and FFTF organizations. A number of minor errors were identified in the IEP reviewed. (**D4-O13**)

The surveillant randomly reviewed training and qualification requirements for Nuclear Safety Engineering, Design Authority, Quality Assurance Engineering, Environmental Compliance Officer, and Senior Management positions. The review included minimum education and experience requirements, completion of qualification cards for selected positions, ITEM, field observations of select positions, and requirements for continuous training. The surveillant also performed a review of the Training Program Descriptions of selected job positions within the D4 project and found no areas of concern. The surveillant interviewed one manager to assess continual training for direct reports and topic relevance.

The surveillant reviewed QA procedures for flow-down to BOS D&D closure project; HNF-8211, "Implementation Table for 10CFR830.122 and ISMS Crosswalk" Appendix A lists the implementing documents for Criterion 5, Work Processes and lists the ISMS core functions in the procedure body. Under Criterion 5, HNF-PRO-12115, Work Management was listed as an implementing document. Procedure HNF-GD-12116, Work Planning Guide was not listed as an implementing procedure (**D4-O14**)

The program/policy for screening suspect counterfeit items was in place and multiple layers of protection were in use by the D&D project. The surveillant reviewed work

documents, QA green tag and purchase orders to verify suspect / counterfeit items screening was adequate. The surveillant observed a Material Coordinator demonstrate the controls necessary in order to receive a new part. The surveillant reviewed work documents for necessary regulatory commitments then went out in the field to observe work related to offsite shipment of Low Specific Activity waste to Permafrix. (OA20452, 20472, 20473, 20474, 20475, 20502, 20532, 20535)

Groundwater Project

The surveillant reviewed project-level work processes and procedures from the perspective of applicability, revision, and cancellation for CHPRC applicability, with special emphasis on QA procedures and/or QA-implementation procedures identified in the GRP QAPP (GRP-QA-001), HNF-20635, Revision 2. A number of referencing discrepancies were identified in the QAPP (**GPP-O03**).

The surveillant reviewed the FY08 IEP to assess groundwater personnel participation. For FY09, the project had scheduled 11 management assessments and 35 surveillances. Although the year to year numbers appeared comparable, interviews with contractor personnel indicated the contractor expectation was that the FY09 surveillance total would increase. A difference in philosophy between CHPRC and FHI would result in a number of activities FHI called management assessments being identified as surveillances by CHPRC. Eighteen such activities conducted by project personnel other than QA personnel were scheduled. In addition, it was expected the QA surveillances would increase beyond the 17 scheduled when redundant QA surveillance activities (such as well final acceptance) were documented. The number and type of assessment/surveillance activities appeared adequate.

The surveillant reviewed established qualification requirements for GRP workers, specifically for safety, engineering, and environmental positions. The project's Environmental Compliance Officers had qualification cards that were specifically reviewed during the conduct of FR surveillance S-08-00D-GPP-001, completed March 5, 2008. The qualification cards were identified and tracked in the ITEM. ITEM also contained what appeared to be adequate training/qualification requirements for project engineers. However, ITEM training requirements specified for GRP health and safety professionals appeared sparse for the areas of oversight for which they have responsibility, and in general training requirement plans could not be identified in any single location (**GPP-O04**).

The surveillant also reviewed progress on development of enhanced qualification requirements for sampling and Pump and Treat facility personnel. Issues with management of sampling training and qualification were cited in an FHI independent conduct of operations review completed in August 2008. The issues had been exacerbated by a rapid influx of personnel from other projects. GRP management entered the review results into the corrective action management process via Issue Identification forms, performed causal analyses and designated what appeared to be adequate corrective actions. A portion of the resolution included breaking sampling

qualifications from one very large qualification into seven smaller, more manageable qualifications. Development of the qualification packages was in progress. A similar initiative for Pump and Treat facility personnel was also in progress. The surveillant reviewed several of the training modules and was impressed with the level of improvement from previously available products.

K-Basins

The 100K Project had scheduled Management Assessments for FY09. Nine Management Assessments were scheduled for the first quarter of 2009. The surveillant interviewed the project Environment Safety Health and Quality (ESH&Q) Manager, two ESH&Q Operations Specialists that support the Manager, and the 100K Training Lead. All personnel interviewed understood that participation in the assessment process was essential to ensure first-hand knowledge of how management systems were functioning. The interviewees reported that the 100K Project Manager understood and emphasized the importance of self assessment; evidence of this was provided in the form of an email from the 100K Project Manager. The email message from the Project Manager, though focused on a Lock Out / Tag Out subject, provided an example of his position regarding the necessity of self-assessment.

The surveillant reviewed KBC-4948, K-Basin Closure, Sludge Treatment, and K-East Basin Closure Projects QAP, Rev 5, dated 9/11/2007. KBC-4948 reflected the status of K-Basins when the KE Basin was designated as the KE Closure Project and still under the control of PHMC. Since the 9/11 revision, the KE Closure Project was transferred to the PHMC D4 Project and since the transition from the PHMC to PRC has been "transferred" back into what was called the 100K Project. The 100K ESH&Q Manager was well aware of this issue and began the process to bring this QAPP up to date (KBC-005).

The 100K Project continued to utilize project specific procedures developed for training and qualifications. This included Training Program Descriptions for a variety of positions such as Radiological Control Staff, Operations Personnel, etc. A Training Advisory Committee (TAC) continued to function and carry out the duties and responsibilities as described in TN-8-013. The main function of the TAC was to oversee training programs in the operations staff disciplines at the KBC Project. The TAC applied to other personnel and training programs as necessary to ensure personnel were trained and qualified to perform their assignments (i.e., health physics, maintenance, and technical staff).

Most of the CHPRC Direct Reports to the 100K Project Manager were qualified to access their assigned facilities. This included the 100K Project Manager and Deputy; both were qualified to access necessary facilities. Only the Work Control Manager and the ESH&Q Manager were unable to access KW Basin. The training necessary for access had been identified and training scheduled for both Managers. As stated above the contractor continued to utilize Training Documents that existed prior to the transition. The contractor had established qualification requirements for all workers assigned to the

100K Project. Responsibilities and authority for personnel who provide training at the 100K Project have been defined. TN-8-001, General Training Administration, covers the training project and associated activities for the 100K Project. This document was in place and utilized by the previous contractor. For the 100K Project there was only one person designated as a QA Manager. This individual has the title of ESH&Q Manager and was supported by two QA Engineers. A variety of methods were available and utilized to solicit input from the workers regarding the adequacy of training being provided. The TAC was one of those methods. Training needs had been identified, EJAs updated, and required training scheduled for all of the 100K Project Personnel (both those personnel on board prior to the transition and those personnel arriving since transition).

CHPRC blue sheeted the PHMC work processes and procedures (e.g. HNF-PRO-12115, HNF-PRO-079, and HNF-GD-12116). The 100K Project did not utilize any project level procedures regarding the work control process. CHPRC had introduced and implemented two processes that enhance the work control process:

- PRC-MD-003 (HRB): The HRB process focuses on the integration and implementation of Integrated Safety Management System, best practices, lessons learned, and the Voluntary Protection Program. The HRB provided a method for the review of select planned work activities (particularly complex, high-hazard tasks) and a review of safety measures that were implemented to support this work. The surveillant had seen the positive effect the HRB has had on the development of work packages and work instructions.
- PRC-MD-004 (Technical Response Team or TRT) The 100K Project had established a TRT. The TRT will assist field work crews in resolving issues or problems that arose during work execution that could not be resolved in a timely manner using available resources. The TRT will have the necessary technical resources available to respond quickly and assist the work crews. (OA20536)

Waste and Fuels

The surveillant reviewed the FY09 Integrated Evaluation Plan for the Waste and Fuels Project. T-Plant has five management assessments scheduled in FY09. One of these is a reactive assessment assigned as a corrective action from an occurrence report. Another is the annual assessment of Fire Hazards Assessment (FHA) key assumptions. A senior management safety assessment was also being performed, in conjunction with a similar assessment at all SWOC facilities. Only two management assessments, confined space and hoisting and rigging, could be considered proactive facility-specific safety and health related assessments. The facility also had one management assessment scheduled for radiological control, radiological source inventory. The surveillant interviewed the facility manager and the radcon manager. It appears that facility management scheduled only the minimum set of assessments as directed by senior project management. Management appears to understand the importance of continuing to perform management assessments; however, it does appear that there is a significant de-emphasis on facility management assessments from previous years that may lead to degraded health in the project management assessment program. (OA20519)

The surveillant found that for FY09 there were approximately 21 MA scheduled for CWC/LLBG and the Waste Retrieval Project for a reduction of about 6 MAs. The review identified that some upcoming startup activities (Polyurea, 218-W-3A) are not identified in the IEP (W&F-O11). The Waste Retrieval QA project plan (HNF-14503) is out of date and some assessment actions were not completed as described (W&F-O09). From discussions with facility managers it appeared that they understood the importance of MAs and the need to gain a first-hand understanding of how well their management systems are functioning. However, there also appeared to be a drive to reduce the number of assessments. The reduction in the number of MAs scheduled will need to be evaluated throughout the year for impact to the self identification of issues. (OA20465)

The surveillant reviewed representative training plans for T-Plant operations supervisors, Nuclear Chemical Operators (NCO) and engineers. The individual training plans are up to date and complete. Personnel qualification status is tracked monthly on a stoplight chart, (red, yellow, green) and the current qualification status was satisfactory. The surveillant also reviewed training modules for various operations positions and interviewed. The modules reviewed were complete and adequate. (OA20519)

The surveillant reviewed the current staffing plans for T-Plant, WRAP and SWSD and interviewed the single remaining individual who was identified as being a QA Engineer (QAE) in the CHPRC SHS&Q organization for the Waste and Fuels Management Project. Prior to CHPRC transition there were approximately 3 to 3.5 FTEs performing QAE duties at the three SWOC facilities. After CHPRC transition, these duties appeared to have been combined into a single FTE. It was too early to determine if a single FTE can provide adequate QA coverage for T-Plant, WRAP and SWSD, including surveillances and assessments, but this area should continue to be monitored by the RL. Furthermore, the T plant staffing plan will need to be updated to support the changes described above (W&F-O08). (OA20479)

The surveillant reviewed a variety of project training documents and discussed the training program with individuals from training, operations, and emergency preparedness. The surveillant was informed that with the new contract the training staff had been cut approximately in half from about sixteen individuals to eight individuals. However, from the interviews with contractor training staff, it did not appear that the work load was reduced by the same percentage. Interviews with personnel identified a number of potential training performance indicator improvements (W&F-O10). In addition, systems do not appear to be in place to periodically review training class content to ensure they are current (W&F-O12). (OA20465)

The coordinator indicated that training had just completed a training assessment and were in the processes of dispositioning issues. The coordinator also indicated that training is now being performed by a subcontractor and that not all positions have been filled. The surveillant also discussed what actions were allowed to be performed by newly assigned facility managers (i.e., those not fully qualified). The coordinator indicated that the newly assigned managers were not allowed to sign specific documents or perform specific

functions (e.g., emergency preparedness positions) until fully qualified. The surveillant discussed the subject with facility managers and was informed of the same. (OA20391)

3.0 Surveillance Results

Finding: S-09-OOD-CHPRC-001-CC-F01

CHPRC has not established or documented responsibilities, authorities, or interfaces for decentralized QA staff. (OA #20488)

Requirement:

CRD O 5480.19 Chg 2 (Supp Rev 3), Conduct of Operations Requirements for DOE Facilities, Chapter 16, Section C.7, states "facility operation should be conducted in accordance with applicable procedures... The requirements for use of procedures should be clearly defined and understood by all operators."

DOE Order 414.1C

(1) Management/Criterion 1—Program.

- (a) Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing work.

Discussion:

Contrary to the above requirement CHPRC has not established or documented responsibilities, authorities, or interfaces for decentralized QA staff.

- Roles and relationships of CHPRC QA staff are undocumented and unclear. For example, there are no detailed position descriptions for QA staff and management (Environmental QA has short position-specific descriptions but all others are generic). Written organization charters were not available. There are no written documents describing the interfaces among the various QA managers or between the central organization and the field (project) organizations. Also, there is no written requirement for the central QA organization to input to the performance appraisals of field QA staff. (HNF-PRO-050, Rev. 5, September 26, 2006, states, "Field managers are responsible for day-to-day direction of employees within their departments. They **may** be required to coordinate employee oversight with a Function Manager (emphasis added).") This creates a potential that field QA resources will be redirected to non-independent project activities rather than independent oversight.
- The independence of field organizations is indeterminate. For example, dotted line relationships are informal, undocumented, and sometimes unclear (that is, the ability of field staff to go above their field management to bring issues to higher levels of management is uncertain). In some cases field QA staff report to managers with little knowledge, training, or experience in QA. In the Environmental Program and Regulatory Management organization some QA staff has been assigned directly to

organizations without benefit of reporting to a nominal QA manager. Also, blue sheeting on some procedures did not establish authorities for the decentralized organization; for example, effectiveness reviews. With the field resources now a part of the projects CHPRC has not taken a documented position on whether oversight performed in these cases is independent.

- Many traditional QA interfaces are being maintained on the basis of personalities and past relationships. There appears to be only one standing interface meeting between core and field QA staff (called both Center of Expertise and Center of Excellence (COE) meeting). This creates the potential for current interfaces to fail as staff change positions or retire.

While the desire to use the COE to apply consistent processes across CHPRC QA is laudable, a review of the (draft) charter for the COE shows it does not include facilitating open communications or providing a conduit for QA issues. It does include identifying opportunities for reducing QA requirements and minimizing/eliminating cost and schedule impacts of QA implementation.

- Field staff has not been provided with written QA objectives, goals, roles, and responsibilities. (A draft Quality and Performance Assurance Action Plan was provided but has not been shared, and it is not clear it will be shared, with field staff or had field staff involvement.) There does not appear to be a plan for training, qualifying, and orienting current and new staff to the new organization.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-CHPRC-001-CC-F02

The CHPRC SQA program had not ensured that PRC-MD-001 was adequately implemented for their safety software. (OA #20550)

Requirement:

CRD O 5480.19 Chg 2 (Supp Rev 3), Conduct of Operations Requirements for DOE Facilities, Chapter 16, Section C.7, states "facility operation should be conducted in accordance with applicable procedures... The requirements for use of procedures should be clearly defined and understood by all operators."

PRC-MD-001, Rev. 0, Transition of PHMC Documents to the Plateau Remediation Company (Dated October 1, 2008). Appendix C, states in part, "CHPRC must comply with specific PHMC/MSD documents listed in the PHMS Docs Online Topical Areas to execute its contract with RL." This appendix listed HNF-PRO-309, Controlled Software Management.

Discussion:

Based upon PRC-MD-001, Rev. 0, CHPRC was managing software using HNF-PRO-309, Controlled Software Management. Although CHPRC identified software management as a potential issue (PI) during transition, it was not evident that a systematic, prioritized, documented process was established to quantify the nature of open safety software issues (previously identified as findings in RL surveillances and assessment), and resolve them per an established schedule. Also, it was not evident that CHPRC had adequately identified all the safety software that they needed to manage, and establish lines of authority/communication with the associated Software Owners and Software SMEs whose duties and responsibilities are defined within HNF-PRO-309. As a result, the surveillants found multiple noncompliances related to project management of their safety software. Without a documented process to resolve these issues, it is not clear how and when the issues will be resolved.

1. Management and staff did not fully identify all the safety software to be managed by CHPRC:
 - ZB-LEAK and ZB-OCW safety software was not recognized by CHPRC as being safety software.
 - Waste Sampling and Characterization Facility LIMS safety software that CHPRC thought they owned was actually owned by Fluor.
2. Management and staff did not communicate with all of the Software Owners to determine their status, and the status of their assigned software until the second day of the surveillance period. The surveillants discovered the following.
 - CHPRC did not know that the listed owner of three sets of safety software (MCS-CVD, SCIC and ATC) no longer worked for the associated project, and that facility management had assigned a replacement.
 - T PLNT UC OPS was identified by CHPRC as being safety software that they needed to manage, however after they contacted the Software Owner it was learned that this software had been cancelled and was never used as safety software.
3. Management and staff did not know who the Software SMEs were for CHPRC safety software, and were continuing to identify them at the conclusion of the surveillance period.

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

Finding: S-09-OOD-CHPRC-001-CC-F03

**The implementation of HNF-PRO-309 Rev. 6 by the CHPRC Chief Information Officer, Software Owners and Software SMEs is inadequate. (OA #20550)
Requirement:**

HNF-PRO-309, Rev. 6, Section 5.1.1 states in part, "Project/Facility/Function Manager 2. Submit appointment of Software SME to the FHI Chief Information Officer for review and approval. FH Chief Information Officer (CIO) 3. Review and approve appointment of Software SME. Software SME 4. Assign the responsibility for acquisition, or development of software to a Software Owner."

HNF-PRO-309, Rev. 6, Section 5.1.2.3. states in part, "Software Owner 3. Register the software application in the Hanford Information Systems Inventory (HISI).

HNF-PRO-309, Rev. 6, Section 5.1.6.2. states in part, "Software Owner 2. If required, complete or update the Software Management Plan."

HNF-PRO-309, Rev. 6, Section 5.5.1.2. states in part, "Software Owner 2. Prepare a Software Requirements Specification."

HNF-PRO-309, Rev. 6, Section 5.6.4. states in part, "Test Personnel 4. Document test requirements by preparing a Test Plan. Include in the test plan the following, as applicable: Acceptance criteria for review of test results."

Discussion:

During surveillance field interviews with CHPRC Software Owners, the following was observed.

- CHPRC management assigned Software Owners to MCS-CVD, SCIC, ATC, PRCNS, and RICS noncompliant to HNF-PRO-309, Rev. 6, Section 5.1.1. This procedure requires the Project/Facility/Function Manager to submit an appointment of the Software SME to the Chief Information Officer (CIO) for review and approval. Once the SME is approved, the SME assigns the responsibility for acquisition, or development of software to a Software Owner.
- The CSD Checklist was not properly updated in HISI for ADRIS, BTC-LDTS, and PFP-CALGAM software in accordance with HNF-PRO-309, Rev. 6, Section 5.1.2. 3.
- PFP-GGH Software Owner had not generated a Software Management Plan in accordance with HNF-PRO-309, Rev. 6, Section 5.1.6.2.
- PFP-GGH Software Owner had not generated a Software Requirements Specification in accordance with HNF-PRO-309, Rev. 6, Section 5.5.1.2.
- PFP-GGH Software Test Plan HNF-37162 Rev. 0 (DRAFT), which is currently routed for CHPRC final review and approval, does not adequately identify software test requirements and acceptance criteria. This is contrary to HNF-PRO-309 Rev. 6, Section 5.6.4.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-CC-001

The CHPRC SQA program has assigned some software to managers with vital responsibilities. [OA #20550]

Discussion:

Based on interviews with the CHPRC CIO and various safety Software Owners, it was evident that some software was assigned to managers whose responsibilities were vital to plant operation and/or safety and health programs. The following were examples of Software Owners who were managers:

- Software Owner Rick Wilbanks is the PFP SNM, Safeguards, Security and Disposition Manager.
- Software Owner was the Quality and Performance Assurance Manager. Review of HNF-PRO-309 shows the Software Owner's responsibilities and duties were extensive. Because of the time and effort required to perform these responsibilities and duties, potential procedural noncompliances could occur due to the Software Owner's primary responsibilities as managers. This was evident in the procedural noncompliance documented in Finding 2, where CSD checklist updates for three software packages were not completed in HISI.

It was evident from the above discussion that Software Owners should be chosen and assigned based not only on their qualifications and experience in the field the software covers but also on their roles and responsibilities within the company. The Software Owner's primary responsibilities as manager should not hinder the implementation of HNF-PRO-309 but reflect on the level of commitment they are capable of providing to adequately manage software.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-CC-002

A large reduction in IEP commitments has occurred without apparent justification. [OA #20531]

Discussion:

Surveillant comparison of original PHMC IEP and current PRC IEP showed that 104 assessment commitments had been cancelled and 63 had been transferred to the PHMC Prime contractor as out-of-scope. Of those totals, 82 were Management Assessments, 73 were Surveillances and 12 were Independent Assessments. Added to the IEP, after the cuts above, were 13 Management Assessments, 13 Surveillances and 3 independent Assessments. An additional three items were submitted as added but the Surveillant was unable to locate them on the IEP dated November 20, 2008.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-GPP-003

Document reference discrepancies were identified in the Soil and Groundwater Remediation Project (GRP) Quality Assurance Project Plan (QAPP). [OA #20304]

Discussion:

The following document reference discrepancies were identified in the GRP QAPP (GRP-QA-001), HNF-20635, Revision 2:

- Several Management Instructions referenced in the QAPD Implementation Matrix (Appendix C) were no longer applicable (e.g., GRP-MI-0010, GRP-MI-0011).
- The QAPD Implementation Matrix (Appendix C) identified WMP-100, Section 4.0 and Section 4.6 as GRP QA implementation procedures. WMP-100, Section 4.0 and Section 4.6 defined their applicability. Neither identified applicability to GRP.
- The QAPD Implementation Matrix (Appendix C) identified WMP-200, Section 2.18 as a GRP QA implementation procedure. WMP-200, Section 2.18, was not identified as an implementing document for equipment piping and labeling in the GRP Conduct of Operations Matrix.

Project-level procedures CP-GPP-EE-09-3.1 through CP-GPP-EE-09-3.5 identified in the QAPD Implementation Matrix for managing computer software were all cancelled in November 2007. Direct implementation of PHMC-level procedures (also identified in the QAPD Implementation Matrix) was initiated at that time.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-GPP-O04

The Integrated Training Electronic Matrix (ITEM) training requirements for Soil and GRP health and safety professionals were not reflective of the areas for which the individuals have oversight responsibility, and in general, the project could not provide one-stop training requirements plans for various project positions. [OA #20409]

Discussion:

ITEM contained training requirements for GRP functions identified as “Industrial Health and Safety Manager,” “Industrial Hygiene Professional,” “Industrial Hygiene Technician (IHT),” “OS&H Manager,” “Occupational Safety,” and “Safety Specialist.” The ITEM training requirements pages stated, “This page is used to select the courses that make up an employee's training plan.” None of the pages for the above positions appeared to contain comprehensive listings of training covering the areas for which the individuals may be responsible. For example, the entire Safety Specialist training requirements consisted of basic medic first aid and root cause analysis; Occupational Safety required basic medic first aid and 8-hour hazardous waste training; and IHT training requirements consisted of basic medic first aid, asbestos worker, and on-the-job trainer/evaluator.

The Surveillant met with the project’s training lead and together attempted to obtain comprehensive training requirement plans for several functions (other than those above), but could not identify them in a single locale.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-KBC-O05

The 100K QAPP is out of date. [OA #20536]

Discussion:

The Surveillant reviewed KBC-4948, K-Basin Closure, Sludge Treatment, and K-East Basin Closure Projects Quality Assurance Program, Rev 5, dated 9/11/2007. The QAPP was not up to date. KBC-4948 reflected the status of the K-Basins when the KE Basin was designated as the KE Closure Project and still under the control of the PHMC. Since the 9/11 revision the KE Closure Project was transferred to the PHMC D4 Project and since the transition from the PHMC to CHPRC has been "transferred" back into what was now called the 100K Project. The 100K ESH&Q Manager was well aware of this issue and has begun the process to bring this QAPP up to date.

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

Observation: S-09-OOD-CHPRC-001-PFP-O06

The Plutonium Finishing Plant (PFP) Watch Procedure was cancelled despite the recent inception in response to DOE findings. [OA #20537]

Discussion:

The Surveillant informed PFP management on October 22, 2008, that cancellation of the watch procedure was a potential issue because of the role it played in closure of the five PFP conduct of operations finding in the EM-62 ISMS assessment. The Surveillant has since quantified that the enhancements to the watch program represented more than 15% of the total number of actions identified by the project. The Surveillant was aware of CHPRC commitment to have management in the field. This commitment was communicated multiple times. Examples include RL interface meetings at the October 1, transition meeting and as part of the First Line Manager training on November 12. The Surveillant believed that management in the field could be completed without the watch procedure.

However, historically PFP management has not been consistent in their oversight of field work. Consequently, the cancellation of the watch procedure was considered a potential issue. Future observations of work at PFP would be the basis for determining if the cancellation was an issue.

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

Observation: S-09-OOD-CHPRC-001-PFP-O07

Potential impact observed at PFP for timely completion of current PFP IEP requirements. [OA #20545]

Discussion:

The PFP QAPP is part of the HNF Changes to the FY09 IEP Assessment Report were submitted to address personnel changes and due dates modified based on current resource availability and transition impacts. Per the FY09 IEP, four Management Assessments (MAs) were scheduled for the first quarter with two assessments currently in process. A total of 14 assessments were planned for FY09 compared to 22 in FY08. Three MAs in the fourth quarter of FY08 were not completed. The completion rate was approximately 86%. All completed FY08 MAs were submitted to the corrective action management authoritative source process. Some informal practices associated with ensuring managers participation has appeared to wane based on the in-process assessments so far. Programmatic Surveillances were being pushed to the project level with no resources identified to pick up the additional tasking or direction of how to maintain an independent review. To date, Safety Management Plan Lines of Inquiries did not have current points of contacts assigned in the schedule to ensure completion. Informal self-assessments were on-going and have limited documentation. Original resources assigned to the tracking and planning of assessments and corrective action requirements have been reassigned. The project appeared to be actively attempting to track and execute the IEP to ensure compliance was maintained.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-W&F-008

T-Plant Staffing Plan not updated after CHPRC transition particularly with respect to the Quality Assurance Engineer position (QAE). [OA #20479]

Discussion:

The QAE support roles were not accurately reflected in the facility staffing plan or organization chart for T-Plant. T-Plant administrative procedure WMP-340, Section 3.05, Rev. 20, Staffing Plan, listed the QAE as a facility position description. During the transition from the PHMC to CHPRC the individual filling the position left the facility and was not replaced. The current T-Plant organization chart, dated as of November 10, 2008, did not list the QAE position, either as a direct report or matrixed support. The Waste receiving and processing Facility Staffing Plan, WMP-350 Section 1.8 Rev. 6, also listed a matrixed facility support position for a QAE. The T-Plant staffing plan also listed a position for Engineering Manager, whereas the organization charts showed that the position of T-Plant Engineering manager was eliminated, an Engineering Lead being the highest engineering level at the facility.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CHPRC-001-W&F-009

HNF-14503, Waste Retrieval Project QAPP was out of date and required actions have not been competed. [OA #20465]

Discussion:

The Surveillant noted that HNF-14503 was out of date and that required actions had not been completed. The Surveillant identified the following examples of where the document was out of date:

- Figure 1 Quality Assurance Organization Interface was incorrect and referenced a defunct organization and personnel who were no longer in positions.
- The documents states "The Waste Retrieval Project PEP (HNF-9432) provides a strategy for managing the retrieval of covered containers through fiscal year (FY) 2008." However, we are currently in FY2009. The Surveillant identified the following example of where required actions were not completed.
- HNF-14503 stated in part, "QA oversight functions will be targeted at container retrieval, radioassay, and venting activities. A minimum of one general assessment/surveillance on NDA activities and a minimum of one general assessment/surveillance on drum venting activities would be performed each year. Independent assessment/surveillances would be conducted periodically by the FH Assessment organization during the life of the project." However, the Surveillant identified that the schedule of FY09 assessments and surveillances (i.e., IEP) provided by the contractor did not have the subject evaluations included. In addition, the Surveillant noted that for FY08 there were no QA or IA in the subject areas.

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

Observation: S-09-OOD-CHPRC-001-W&F-O10

Solid Waste Operations Complex (SWOC) Waste & Fuels training performance indicators could be improved. [OA #20465]

Discussion:

The Surveillant was informed that the only training performance indicator was for tracking training "No Shows." From discussions with personnel there appeared to be other useful performance indicators such as tracking the total hours spent in training, training hours per employee or group, number of individuals delinquent in training, group delinquency rates, time required to complete qualification/certification, total number of training classes/courses required, average time between class/course reviews for current content, performance improvements based on training provided, etc. The above indicators would provide better indication of the programs health and cost. The above information would be particularly beneficial in demonstrating to the project and DOE the cost of retraining personnel when funding changes required personnel to be reassigned (e.g., operator moves from project to project).

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

Observation: S-09-OOD-CHPRC-001-W&F-O11

Lack of Management Assessments for the startup of significant new Waste & Fuels activities. [OA #20465]

Discussion:

The Surveillant noted that the assessment schedule provided did not have an assessment scheduled for the startup of the Polyurea Coating Process. The process introduced new chemicals, hazards, and controls; required the implementation of new TSR controls and procedures, required additional training, and required area setup. The Surveillant discussed the activity with the facility manager and the need to ensure that the Quarterly Startup Notification Report appropriately captured the activity and that the correct level of review was identified. The Surveillant also noted that the FY08 schedule had identified that a MA was scheduled for the startup of 218-W-3A, Trench 17; however, the MA was cancelled. Cancelling the MA appeared to be in error based on the number of issues identified after startup.

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

Observation: S-09-OOD-CHPRC-001-W&F-O12

System for tracking W&F training program reviews could be beneficial. [OA #20465]

Discussion:

The Surveillant was informed that a recall system or tickler system was not being used to ensure that classes and courses were being reviewed on a given periodicity to ensure they were still current. The Surveillant had experienced first hand an instance where training (FEHIC) was no longer current. In addition, from discussions with personnel there appeared to be several classes/courses that had not been reviewed for some time to ensure that they were current. Also, the third quarter Training Management Assessment, dated September 23, 2008, identified similar conditions.

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

Observation: S-09-OOD-CHPRC-001-D4-O13

Deactivation and Decommissioning (D&D) Integration Evaluation Plan for Fiscal Year (FY) 09 needs updating of assessors [OA #20502, 20473]

Discussion:

As a result of Surveillant review, a number of errors were identified in the D&D IEP as follows:

- The IEP for FY09 lists names of assessors who are no longer part of the D&D organization. The CPS&M Nuclear Safety Engineer stated that an e-mail is distributed that identifies this as a problem.
- IEP Assessment Report for FFTF Closure Project missing responsible assessor for 5 management assessments scheduled between 10/1/08 to 3/31/09.
- Assessments for Respiratory Protection Program, Fall Protection Program, HNF-PRO-10468, Scaffold Program and Portable Ladders Program did not have a responsible individual assigned (marked TBD). Three of the management assessments had a start date of 10/1/08.

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

Observation: S-09-OOD-CHPRC-001-D4-O14

Procedure HNF-GD-12116 missing from 10CFR830.122 & ISMS Crosswalk Table for D4. [OA #20532]

Discussion:

The Surveillant reviewed QA procedures for flow-down to BOS D&D closure project; HNF-8211, "Implementation Table for 10CFR830.122 and ISMS Crosswalk" Appendix A listed the implementing documents for Criterion 5, Work Processes and listed the ISMS core functions in the procedure body. Under Criterion 5, HNF-PRO-12115, Work Management was listed as an implementing document. Procedure HNF-GD-12116, Work Planning Guide was not listed as an implementing procedure in either Criterion 4 (Documents and Records) or Criterion 5 (Work Processes). Both procedures are used by BOS D&D work control planners in developing work documents.

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

Good Practices:

- **Use of Hazard Review Board (HRB) strengthens SH&Q work practices at CHPRC Projects:** RL oversight of CHPRC HRB use at the projects indicated this practice served to strengthen project work practices and instructions. This practice also increased CHPRC management awareness of ongoing high hazard work and supported systematic, safe work performance. Ongoing use of this process was expected to support consistent implementation of CHPRC management expectations and support ongoing high quality, safe work performance. (OA20427)
- **SWOC Modification to yearly training form to require supervisory review and certification of personnel training plans for adequacy:** The Surveillant noted that a corrective action from the third Quarter Training Management Assessment, dated September 23, 2008, identified that "Many SWSD personnel ITEM training plans

[were] are not current." As a result, an Issue Identification Form was generated and corrective action identified. Specifically, a yearly training form was modified to require a supervisory review and certification of personnel ITEM training plans to ensure adequacy. (OA20465)

Contractor Self-Assessment:

A review of CHPRC assessment schedules and interview of personnel was completed as part of the lines of inquiry for this surveillance. Inadequate data was available to fully evaluate the quality of CHPRC self-assessments; however the program was still being implemented per existing processes.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Results from individual Operational Awareness reports and project oversight results were communicated to project personnel as they were drafted. The formal out brief was provided on November 24, 2008, at 9 am.

Gary Grant, CHPRC
Shelby Turner, CHPRC
Rick Warriner, CHPRC



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

REISSUE

09-MGR-0013

MAR 13 2009

Ms. D. R. Sagner
Senior Manager of Contracts
AdvanceMed Hanford
A Computer Sciences Corporation
15245 Shady Grove Road, Suite 200
Rockville, Maryland 20850

Dear Ms. Sagner:

CONTRACT NO. DE-AC06-04RL 14383 - TRANSMITTAL OF SURVEILLANCE REPORT
S-09-SCO-AMH-ECP-001

Enclosed is the U.S. Department of Energy, Richland Operations Office, Office of Special Concerns (SCO) surveillance report of the AdvanceMed Hanford (AMH) Employee Concerns Program (ECP). The purpose of the surveillance was to evaluate and verify that AMH 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 program is operating in a compliant manner to CRD 442.1A, Supplemented Rev 1. There were no findings or observations identified as part of this surveillance.

If you have any questions please contact Bonnie A. Lazor, SCO on (509) 376-6230.

Sincerely,

A handwritten signature in black ink that reads "Andrew H. Wirkkala".

Andrew H. Wirkkala
Contracting Officer

SCO:BAL

Enclosure

cc w/encl:
P. A. Davison, AMH
M. E. Zizzi, AMH

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

Division: Office of Special Concerns (SCO)

Surveillant(s): Bonnie Lazor, SCO-RL and Darren Parham, SCO-SR

Surveillance Number: S-09-SCO-AMH-ECP-0001

Date Completed: February 27, 2009

Contractor: AdvanceMed Hanford (AMH)

Facility: 1979 Snyder Street, Suite 150

Title: Effectiveness Review - AMH Employee Concerns Program (ECP)

Guide: DOE CRD 442.1A, Supplemented Rev 1

Surveillance Scope:

The purpose of this surveillance is to verify that the contractor AMH, ECP is properly implemented.

1. Are all updated/revised AMH, ECP procedures signed and approved?
 2. How are procedure changes disseminated?
 3. Has the AMH, ECP database been changed or enhanced?
 4. How are referred or transferred corrective actions managed?
 5. How does the ECP procedure manage corrective actions?
 6. What is the corrective action feedback process?
 7. What is the concern closure process and how is information relayed to the concerned individual?
-

Surveillance Summary:

The surveillance was conducted in part by interviewing the AMH ECP Manager on February 3, 2009. The surveillance also included the review of AMH policy and procedures. On January 22, 2009, AMH Employee Concerns Program (ECP) Policy and Procedure, AMH-POL-AD113 was revised, approved, and superseded to AMH Employee Concerns (ECP) Policy, AMH-ADM-090B and AMH Employee Concerns Program Procedure, AMH-ADM-090C, respectively. During August 27, 2008, to February 3, 2009, AMH ECP received zero concerns.

AMH's last surveillance dated August 27, 2008, resulted in the identification of one finding and three observations as follows:

Finding S-08-SCO-AMH-001-F01:

AMH has not implemented CRD M 442.1-1 as defined in contract transmittal letter.

Observation S-08-SCO-AMH-001-O01:

The AMH ECP Manager has not been clearly identified.

Observation S-08-SCO-AMH-001-O02:

An AMH ECP Hotline number has not been identified.

Observation S-08-SCO-AMH-001-O03:

All concerns/contacts (formal or informal) received are not tracked and maintained in the AMH ECP database.

Immediately following the August 29, 2008, surveillance, AMH ECP implemented CRD M 442.1-1, into AMH-ADM-090B; clearly identified the AMH ECP Manager in AMH-ADM-090B, AMH-ADM-090C, and organizational charts; updated the AMH ECP Hotline; and will track and maintain all concerns/contacts (formal or informal) received in the AMH ECP database.

The AMH ECP Procedure, AMH-ADM-090C is the basis for the AMH ECP. On January 28, 2009, AMH-ADM-090B and AMH-ADM-090C policy and procedures changes were disseminated to all AMH employees via AMH's required reading (e-mail). The required reading (e-mail) verifies and tracks all employee responses and managers are responsible for ensuring 100 percent response accountability. Currently, AMH ECP is awaiting final approval of DOE O 442.1b and implementation of the DOE ECP Agency-wide Database to make system enhancements and/or needed requirements.

AMH ECP has consistently implemented DOE requirements to its contractors and subcontractors and is effective in addressing employee concerns. The ECP Manager has demonstrated that the processes and system are operable as implemented and the procedures utilized meet the contract requirements. AMH ECP prioritizes concerns consistently with DOE O 442.1A and has an effective intake, tracking, and resolution process. AMH ECP's goal is to resolve concerns within 30 days.

In cases where corrective actions are required, AMH ECP tracks the action(s) through both the ECP and Performance Assurance databases. These actions follow DOE timelines with routine safety concerns being resolved within 30 days. In addition to action tracking through the AMH ECP database, a weekly action tracking report is also generated that identifies all open actions which is reviewed by Requirement Management. Prior to closing any safety concern or corrective action a review is

conducted by the AMH Quality Management and Improvement Committee to determine if additional work is needed to close.

Once a concern is considered resolved or closed, the AMH ECP Manager meets one-on-one with the concerned individual to discuss the findings. Following the meeting, the ECP Manager also sends written communication to the concerned individual via return receipt-registered mail to document closure and notification.

Surveillance Results:

This surveillance established through interviews and document reviews that the AMH RCP is operating in a compliant manner and meeting the needs of employees to provide products and services as required by the DOE Order and regulations; and Contract Requirements Document. The AMH ECP Manager has established a viable, service-related program that proactively initiates process improvement. The review team identified No findings or observations.

Documents Reviewed:

RL ECP AMH Surveillance Report (S-07-SCO-AMH-ECP-0001) dated August 27, 2008;

AMH Employee Concerns Program Policy (AMH-ADM-090B) dated January 22, 2009;

Employee Concerns Program Procedure (AMH-ADM-090C) dated January 22, 2009;

AMH Organizational Charts dated 9/11/2008.

Management Debriefed:

Martin E. Zizzi, AMH
Patricia A. Davison, AMH
Roger A. Pressentin, AMRC
Stan O. Branch, ECP MGR



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

MAR 10 2009

09-OOD-0023

Mr. B. J. Hanni, President
and Chief Executive Officer
Fluor Hanford, Inc.
Richland, Washington 99352

Dear Mr. Hanni:

**CONTRACT NO. DE-AC06-96RL13200 – OPERATIONS OVERSIGHT DIVISION
EVALUATION OF FHI ELECTRICAL SAFETY PROGRAM IMPLEMENTATION**

During January and February 2009, the RL Facility Representative performed a surveillance at various FHI facilities to evaluate the implementation of electrical safety program requirements. Three Findings and two Observations in the RL surveillance report (S-09-OOD-CSI-001) were identified. A copy of the surveillance report is provided in the attachment to this letter. Per Finding 01, RL will consider the event as a near miss for trending of FHI safety performance purposes. Despite the issues identified, the electrical safety program implementation is considered to be adequate and the initial investigation and fact finding related to the February 17, MO-276 trailer power panel event was adequate.

You are requested to process the attached report through the FHI corrective action management process. The Findings and Observation 001 require closure by the applicable RL Lead Assessor.

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 Ray J. Corey, Assistant Manager for Safety and Environment, at (509) 376-0108.

Sincerely,


Sally A. Sieracki
Contracting Officer

OOD:RMI

Attachment

cc w/attach:
W. H. Previty, FHI
M. S. Strickland, FHI

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Larry Earley, Cliff Ashley

Surveillance Number: S-09-OOD-CSI-001

Date Completed: February 20, 2009

Contractor: Fluor Hanford, Inc. (FHI)

Facility: Closure Services and Infrastructure (CSI) and Waste Sampling and Characterization Facility (WSCF)

Title: Electrical Safety

Guide: OSS 19.2

Surveillance Scope:

The scope of the Electrical Safety Core Surveillance was to verify that contractor personnel were using safe work practices in completing electrical maintenance and modification work on AC and DC systems.

Surveillance Summary:

The Facility Representative (FR) performed the following activities in order to evaluate the CSI and WSCF Programs:

- Reviewed several plan of the day reports;
- Reviewed several completed and in progress work packages;
- Attended three job walkdowns;
- Observed three maintenance jobs; and
- Interviewed electricians and Electrical Utility (EU) linemen regarding Electrical Safety practices.

Detailed summaries of the maintenance activities observed are as follows:

1. The FR performed oversight for the 283-W Annual PM on Chlorine Cylinder Hoist. The FR observed the following activities:

- Pre-job briefing;
- Work Release Meeting;
- Job Walk Down; and
- Lock & Tag (L&T) Preparation

During the field walk down, the crafts were discussing the performance of the safe condition check and the FR asked the Person In Charge (PIC) what the Flame Resistant clothing requirements were as specified in the work package. The PIC looked through the package and concluded the clothing requirements were not in the work package. There were discussions with the electricians and they stated that they knew the requirements however, it was stated by the PIC that the package should include this information. The Operations Manager shut down the job based on the work package being incomplete.

2. The FR observed the installation of an electrical box in Room 133 of 2101-M. The electrical box was installed to replace an extension cord being used as permanent wiring.

The FR observed the job being walked down with the PIC and the electricians. The FR also observed the pre-job briefing which was comprehensive.

The FR observed the work activities which consisted of the following:

- Conduit Preparation;
- Conduit Installation;
- L&T Installation;
- Safe to Work Check;
- Wire Pulling;
- Wiring Connections;
- Conduit Fastening;
- NEC Inspection;
- Re-energization; and
- Clean-up of Work Area.

The job was performed in a professional manner, in accordance with established requirements and without incident.

3. The FR observed EU switching activities outside of Fast Flux Test Facility (FFTF) to provide an outage and to support facility maintenance.

The FR reviewed:

- EU work order 6B-08-72029 (FFTF Switching Support);
- S08-72029 Switching Orders; and
- Automated Job Hazard Analysis (AJHA) CSI-1039.

The FR observed the following activities:

- Pre-job briefing;
- Opening of the 13.8 kV breaker C5X45 by FFTF Operator;
- Opening of pole switch C5X71 by EU linemen; and
- Installation of the controlling organization L&T.

The FR also questioned the EU linemen regarding Personal Protective Equipment, electrical safety practices, approach distances, switch operations, AJHA information and work package contents. No issues were identified with EU work practices.

Subsequent to completing the first draft of this surveillance, the project had an event that involved grounding of a wire in a power panel in MO-276 while re-installing a screw. A brief description of the event is as follows. Two electricians and a PIC were assigned to the job for work package 2M-88474/W which had a scope identified to evaluate the MO-276 panels for multi-wire branch circuits and label panels/circuits as necessary. The electricians began the visual inspection on Panel 8 at approximately 11:00 am and identified multi-wire branch circuits. The cover was replaced and the screws were finger tightened. A battery powered drill was used for final tightening. On the 5th panel screw (middle screw on right side) a "pop" was heard, the electricians smelled/saw smoke and they also heard a breaker open in Panel 7. The electricians confirmed the breaker in Panel 7 that opened was the Panel 8 feeder breaker and then they removed the breaker cover again to investigate what had occurred. When they noted the burnt wiring and panel side, they stopped and contacted their Management. Although the FHI critique and investigation was generally adequate, three findings and an observation were identified.

The FR considers the Electrical Safety Programs to be satisfactory and the activities appeared to meet requirements. Three Findings and two Observations were identified.

Surveillance Results:

Finding: S-09-OOD-CSI-001-F01

MO-276 Electrical Grounding event not correctly categorized by FHI. (OA 21753)

Requirement(s):

DOE M 231.1-2, Section 6.3 Group 10 #(3) states in part, "A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence."

SCRD M 231.1-2 Supp. Rev. 6 defines a near miss as "A situation in which an inappropriate action occurs or a necessary action, which could be reasonably expected to occur, is omitted and could have resulted in personnel injury. This includes a situation where controls that should have been in place were absent or overlooked."

Discussion:

A near miss event occurred which was only prevented by a circuit breaker opening on an adjacent panel. Preliminary investigation indicates the wiring configuration was as received for the trailer; however, it is reasonable to expect wiring would be adequate to preclude this type of event. The event which was nearly missed was an electrical panel fire and/or a facility/building evacuation.

Electricians began a visual inspection on Panel 8 in MO-276 and identified multi-wire branch circuits. The panel cover was replaced and a battery powered drill was used for final tightening. On the 5th panel screw (middle screw on right side) a "pop" was heard, the electricians smelled/saw smoke and they also heard a breaker open in Panel 7. The electricians confirmed the breaker in Panel 7 that opened was the Panel 8 feeder breaker and then they removed the breaker cover again to investigate what had occurred. When they removed the panel cover they noted the burnt wiring and a burnt panel side indicating a short circuit.

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

Finding: S-09-OOD-CSI-001-F02

Required PPE for MO-276 electrical work was not worn for work activities. (OA 21753)

Requirement(s):

NFPA 70E Table 130.7 (C)(10) states, the following PPE are required for Category 1 work: Pants (long), Long-sleeve shirt, Hard Hat, Safety Glasses, ..."

Discussion:

During the critique following the MO-276 near miss event, the electricians stated they wore the following during the performance of the panel cover removal/installation activities:

FR Clothing

- Safety Glasses
- Leather Gloves

Per NFPA 70E Table 130.7 (C)(10) hard hats are also required. The electricians stated they did not wear hard hats.

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

Finding: S-09-OOD-CSI-001-F03

**MO-276 work planning was not adequate to ensure that hazards are identified, priorities are balanced, and the necessary resources are allocated. (OA 21785)
Requirement(s):**

DOE P 450.4 Safety Management System Policy, Component 3 Core Functions for Integrated Safety Management, Second Paragraph states, "Define the Scope of Work. Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated."

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, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc." and paragraph (2) states, Identify and control items to ensure proper use."

NFPA-70-2005, National Electrical Code, Article 110.7 Insulation Integrity states, "Complete wiring installations shall be free from short circuits and from grounds other than as required or permitted in Article 250."

Discussion:

Contrary to the cited requirements, electricians were assigned the mission to identify and label multi-wire branch circuits in 16 electrical power panels at MO-276; however, this work was allowed to proceed without appropriately isolating the electrical power to these panels. The decision was made to perform the checks energized to minimize impacts to office workers. Thus, the electricians were instructed to remove the front cover of these panels (while energized) and without breaking the plane of the panel, visually inspect and determine which circuits were multi-wire branch circuits. This had the following negative consequences:

1. Not all multi-wire branch circuits could be adequately identified, as electricians needed to move wires/wire bundles aside to determine the number of wires contained in conduits. This method is used to verify if branch circuits are, or are not multi-wire branch circuits. As a result the mission could not be adequately accomplished.
2. Inadequately secured wires and/or wire bundles resulting from previous poor workmanship could not be corrected as to ensure wire insulation is free from short circuits and from grounds. This is contrary to Article 110.7 cited above.
3. Incomplete labeling of all multi-wire branch circuits created a potential hazard for other workers. Qualified workers who may later access these electrical panels might assume that branch circuits not labeled, are not multi-wire branch circuits. Without being adequately advised, these workers could perform work on a multi-wire circuit without adequate electrical energy isolation that could result in an electrical shock.

4. The combination of inadequate isolation of electrical power, and inadequate protection of electrical wire insulation caused an electrical short to ground when on February 16, 2009, electricians were remounting the front cover to an electrical power panel (SP8) and a panel screw broke the insulation of a branch circuit wire and shorted the conductor to ground. This simultaneously tripped three circuit breakers, and could have caused a shock to the workers. Reference FH Critique report CSI-FS-09-001, and RL Operational Awareness reports 21733, 21753, and 21785.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CSI-001-001

Work continued past an appropriate stopping point following grounding event during MO-276 panel cover replacement. (OA 21753)

Discussion:

During the critique for the MO-276 near miss event, the following was discussed. The electricians replaced a panel cover in MO-276. A battery powered drill was used for final tightening. On the 5th panel screw (middle screw on right side) a "pop" was heard, the electricians smelled/saw smoke and they also heard a breaker open in Panel 7. The electricians confirmed the breaker in Panel 7 that opened was the Panel 8 feeder breaker and then they removed the breaker cover again to investigate what had occurred. When they noted the burnt wiring and panel side, they stopped and contacted their Management.

A more appropriate stopping point should have been when the unusual condition was encountered (i.e., breaker opened, smoke seen and smelled) rather than opening the panel without contacting management and without a safety review or a L&T applied. The Operations Manager shut down the job based on the work package being incomplete. Although this issue was discussed at the critique, it was not clear whether FHI management considered this to be an issue.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-CSI-001-002

Work Package for 283-W Annual PM on Chlorine Cylinder Hoist did not contain all necessary information. (OA 21447)

Discussion:

The crafts were discussing the performance of the safe to work check prior to commencing work. The safe to work check was going to be for the electricians to open the 480V Box and take readings. The FR asked the PIC what the Flame Resistant clothing requirements were as specified in the work package for this activity. The PIC looked through the package and concluded the clothing requirements were not in the

work package. There were discussions with the electricians that they knew the requirements however, it was stated that the package should include this information. The PIC followed up with the FR that the safe to work check has previously been to just try and cycle the crane controls and therefore there were no special clothing requirements. However, the work package was being revised to allow for both options and flame resistant clothing requirements for a 480 V system would now be included in the package.

The Operations Manager shut down the job based on the work package being incomplete.

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

Contractor Self-Assessment:

The FR reviewed the Management Assessments performed in the electrical safety topical area for the previous year and determined they were adequate.

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

Management Debriefed:
Rich Redekopp, CSI



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

09-OOD-0031

MAR 18 2009

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL14655 – SURVEILLANCE REPORT S-09-OOD-RCP-001,
ELECTRICAL SAFETY

Various aspects of the WCH Electrical Safety Program were assessed during the month of February 2009. Overall, the program appeared robust, although isolated instances were identified where program expectations were not fully implemented as discussed in the attached surveillance. You are requested to process the attached report through the WCH corrective action management process.

In addition, RL has been monitoring your efforts to ensure programs and policies are in place to establish and maintain configuration control of facilities and field installations. Actions you have taken to date appear robust, although numerous discrepancies between controlled drawings and installed equipment were identified during your recent assessment. Resolution of these discrepancies will serve to further strengthen the WCH electrical safety program and remove potential error precursors.

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, Operations Oversight Division Director, at (509) 372-2139.

Sincerely,

A handwritten signature in black ink that reads "Andrew H. Wirkkala".

Andrew H. Wirkkala
Contracting Officer

OOD:BAB

Attachment

cc w/attach:

S. L. Feaster, WCH
D. H. Houston, WCH
D. L. Plung, WCH
R. J. Skwarek, WCH

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant(s): Brian Biro, Deana McCranie, Mat Irwin , Joe Waring,
Allison Wright

Surveillance Number: S-09-OOD-RCP-001

Date Completed: February 27, 2009

Contractor: Washington Closure Hanford LLC (WCH)

Facilities: All

Title: Electrical Safety

Guide: OSS 19.2

Surveillance Scope:

The objective of this surveillance is to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work.

Surveillance Summary:

Various aspects of the WCH electrical safety program were assessed. These included:

- Observing electrical work being conducted in the field.
- Reviewing in-progress and completed work instructions for electrical work.
- Interviewing WCH management responsible for the electrical safety program.
- Review of WCH management self-assessments associated with electrical safety.
- Interviewing electricians to determine their understanding of safety-related work practices.

Interviews with WCH management and craft revealed a high level of sensitivity for electrical safety and the policies and procedures in place to accomplish electrical work safely.

The following findings and observations resulted:

- **S-09-OOD-RCP-001-F01:** Work Package FR3-08-11-12-068, Rev. 0, 618-7 Electrical Service Removal, was not implemented as written.
- **S-09-OOD-RCP-001-F02:** Signatures for work completed in DHI-08-01-02-007 Electrical Installation, Troubleshooting, Modification, and Repair were not made in accordance with established procedure.
- **S-09-OOD-RCP-001-O01:** WM Dickinson (WMD) does not have a tickle file to remind them of the monthly required Ground-fault circuit interrupter (GFCI) testing.
- **S-09-OOD-RCP-001-O02:** WMD does not have a craft work package to perform the required monthly test of GFCI receptacles.

In conclusion, WCH had programs and policies in place to ensure safe work practices for completing electrical maintenance and modification work. Opportunities to improve conduct of operations during implementation were identified.

WCH was in the process of conducting a configuration management assessment of electrical installations during this surveillance period. The assessors were noting multiple discrepancies between drawings and installed equipment. Specifically, in some instances equipment on drawings did not match installed equipment in the field and labeling did not match drawings or did not exist.

Establishing and maintaining configuration control of electrical installations is essential for ensuring electrical safety. WCH is encouraged to focus on modifying behaviors to increase rigor in the area of configuration control.

Surveillance Results:

Finding: S-09-OOD-RCP-001-F01

Work Package FR3-08-11-12-068, Rev. 0, 618-7 Electrical Service Removal, was not implemented as written.

Requirement:

WCH PAS-2, Integrated Work Control Program Procedure No. PAS-2-1.1 Rev. 4 Integrated Work Control section 6.7.9 stated, "The Work Supervisor ensures work is

performed in accordance with the approved work package. If work cannot be performed as written, contact the RM to initiate the change process in accordance with (IAW) Section 6.10."

Discussion:

Contrary to the cited requirement, the following was noted:

1. The work package stated, in part, "It is required to record work performed in the Performance section (Page 5) or in the Work Package Status Log (Appendix 2)." The work package did not contain a page five. No section was labeled "Performance," and no entry was made in the Work Package Status Log pertaining to work performed. It is acknowledged an entry was made in the "Record Date and Work Performed:" section on page 4 of 4. It stated, 12-10-08 Light poles removed & wire removed from conduit [?] [?] from Dist Panel to termination Pts."
2. The work package stated, in part, "Prior to any excavation activities the Resident Engineer shall review, with the operator and Supervisor, a current drawing which identifies existing utilities in the specific work area and document the review and RE approval in the Work Package Status Log (Appendix 2)." This review and approval was not documented in the Work Package Status Log.
3. The work package stated, in part, "The work supervisor must enter the statement... "Air gap is in place and work may proceed" in the Performance section or Status Log section and shall be signed by the Work Supervisor before work is to begin." There was no section titled "Performance." The statement was not written in the Work Package Status Log or "Record Date and Work Performed:" section, and there was no signature by a work supervisor.
4. The work package stated, in part, "HP- Resident Engineer has reviewed all drawing 'as-built' information and approved the final red lines. This must be documented and signed by the RE in the Work Package Status Log (Appendix 2)." There was no signature in the Work Package Status Log demonstrating the review had been performed.

RL Lead Assessor Closure Required:

YES [X]

NO []

Finding: S-09-OOD-RCP-001-F02

Signatures for work completed in DHI-08-01-02-007 Electrical Installation, Troubleshooting, Modification, and Repair were not made in accordance with established procedure.

Requirements:

WCH Procedure No. PAS-2-1.1 Rev. 4, Integrated Work Control, section 1.2 states, in part, "When the scope of work is complete, the Work Supervisor signs the bottom of the page indicating that the scope of the Performance page (not the CWP) is complete."

Discussion:

The "work scope as described above has been completed" block of the Performance sections in craft package DHI-08-01-02-007 had not been signed in two instances (work conducted between August 27-28, 2008 and September 2-22, 2008). Immediate action was taken to resolve this issue.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-001-O01

WM Dickinson (WMD) does not have a tickle file to remind them of the monthly required Ground-fault circuit interrupter (GFCI) testing.

Discussion:

The FR discussed GFCI testing with the WMD site superintendent. It was determined WMD had no process in place to remind them when GFCI testing needed to be conducted. The superintendent thought a monthly reminder was a good idea and stated he would program one into his laptop computer.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-001-O02

WMD does not have a craft work package to perform the required monthly test of GFCI receptacles.

Discussion:

WMD had American Electric perform the monthly test on their spider boxes, but they did not have a work package in place to do so. WMD considered this routine work. Specifically, there was no means to ensure all appropriate spider boxes were tested. WMD sent a worker with American Electric when they came out to 100N to show them where the spider boxes were located. The location of the spider boxes would be expected to change as the project progresses over the next three years, and more or less spider boxes may be in service over time.

On a positive note, American Electric did provide documentation of the testing (spider box number, receptacle number, location, signature, and a hand drawn diagram), which was lacking prior to the shock event on the roof of 109N. This appeared to be work that should require a craft work package so the equipment that needs testing can be formally identified, hazards and controls specified, the work briefed, and then formally released.

The FR reviewed Procedure PAS-2-1.1, Integrated Work Control Program, and also inquired how GFCI testing is performed/controlled by WCH's Surveillance, Maintenance, and Utilities (SM&U) group. WCH controls this work using Task Instructions 1E-GFCI and 3E-GFCI for the 100, 300, and 600 Areas.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

In Calendar Year 2008, numerous self-assessments and surveillances were conducted by WCH in the areas of electrical safety, hazardous energy control, RRD 005 implementation, and NFPA 70E. Reviews covered the electrical safety program, electrical work being conducted in the field, work packages, GFCI testing, temporary installations, and training. Deficiencies identified were tracked in the Corrective Action Management System. Reviews included follow-up to electrical related occurrences and abnormal events. One independent assessment of the electrical safety program was completed in 2008. The Self-Assessment and Surveillance schedule for the remainder of 2009 included about one dozen additional reviews in this area, to be completed by Waste Operations, D4, and Field Remediation Projects, as well as the functional support organization. The Fiscal Year 2009 Project Services Self-Assessment and Surveillance Schedules, which includes Infrastructure & Information Services/Facility Services, contain no review of lockout/tagout or electrical safety reviews. Facility Services should consider adding this area to their assessment schedule. The rigor of the reviews and documentation varied, but was considered adequate.

WCH was in the process of conducting a configuration management assessment of electrical installations during this surveillance period. The assessors were noting multiple discrepancies between drawings and installed equipment. Specifically, in some instances equipment on drawings did not match installed equipment in the field and labeling did not match drawings.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

S. Dieterle, WCH
R. Skwarek, WCH



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

APR 14 2009

09-SED-0084

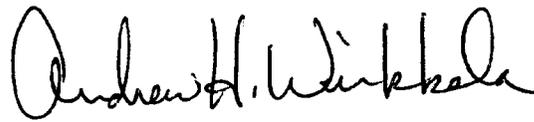
Mr. C. G. Spencer, President
Washington Closure Hanford LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF S-09-SED-WCH-006,
REVIEW OF WASHINGTON CLOSURE HANFORD MOTOR CARRIER DRUG AND
ALCOHOL PROGRAM

The purpose of this letter is to transmit RL surveillance report S-09-SED-WCH-006, which documents a review of WCH's Motor Carrier Drug & Alcohol Program for compliance with U. S. Department of Transportation Federal Motor Carrier Safety Regulations. The RL surveillance identified four findings and three observations. No formal response to this letter is required. Please note, however, that RL closure authority is required for the findings and the first observation. If you have any questions, please contact us, or your staff may contact Ray J. Corey, Assistant Manager for Safety and Environment, on (509) 376-0108.


David A. Brockman
Manager


Andrew H. Wirkkala
Contracting Officer

Attachment

SED:DWC

cc w/attach:
S. L. Feaster, WCH
T. A. Harris, WCH
D. H. Houston, WCH
D. L. Plung, WCH
J. F. Saskowsky, WCH

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

Division: Safety and Engineering Division (SED)

Surveillant: Dennis W. Claussen

Surveillance Number: S-09-SED-WCH-006

Date Completed: March 9, 2009

Contractor: Washington Closure Hanford (WCH)

Facility: Washington Closure Hanford, Motor Carrier Operations at 2620 Fermi Avenue

Title: Review of Washington Closure Hanford (WCH), US Department of Transportation (DOT) Motor Carrier Drug and Alcohol Program

Surveillance Scope:

This surveillance is a compliance review of WCH's DOT Motor Carrier Drug and Alcohol Program against requirements of 49 CFR.

Surveillance Summary:

Documents Reviewed:

- PM-LR-1, WCH DOT Drug and Alcohol Testing Program, Rev. 0
- BSC-1-11.1, DOT Drug and Alcohol Program, Rev. 2
- BSC-1-1.10, Fitness for Duty, Rev. 3
- PM-HR-11, Employee Assistance Program, Rev. 1

Interviews conducted with:

- Labor Relations Manager and Administrative Assistant
- Training Manager and Training Specialist
- Training Manager and staff

The Surveillant did not review any controlled substances or alcohol test results records associated with WCH DOT controlled substance and alcohol misuse program due to privacy issues.

The surveillance resulted in the identification of the following four findings and three observations.

- **Finding: S-09-SED-WCH-006-F01:** First line supervisors of drivers are not trained to Federal Motor Carrier Safety Regulations (FMCSR) (49 CFR 325- 399).
 - **Finding: S-09-SED-WCH-006-F02:** Three drivers were not included in the drivers' pool for random sampling.
 - **Finding: S-09-SED-WCH-006-F03:** The WCH Employee Assistance Program does not restrict drivers who admit to alcohol misuse or controlled substance use from performing safety-sensitive functions.
 - **Finding: S-09-SED-WCH-006-F04:** The WCH Fitness for Duty Procedure limits testing for controlled substances and alcohol to one year; DOT regulations allow follow up testing for up to 5 years at the discretion of the Substance Abuse Professional.
 - **Observation: S-09-SED-WCH-006-O01:** WCH has only identified one designated employer representative (DER), which may impact their ability to remove a driver from performing safety-sensitive functions.
 - **Observation: S-09-SED-WCH-006-O02:** During investigation of a potential new hire driver, WCH is not documenting phone conversations with past employers in attempts to attain required driver's safety performance history.
 - **Observation: S-09-SED-WCH-006-O03:** The DER has not received training for DER responsibilities.
-

Surveillance Results:

Finding: S-09-SED-WCH-006-F01

First line supervisors of drivers are not trained to Federal Motor Carrier Safety Regulations (FMCSR) (49 CFR 325- 399).

Requirements:

49 CFR 390.3(e) states "Knowledge of and compliance with the regulations.

(1) Every employer shall be knowledgeable of and comply with all regulations contained in this subchapter which are applicable to that motor carrier's operations.

(2) Every driver and employee shall be instructed regarding, and shall comply with, all applicable regulations contained in this subchapter.

(3) All motor vehicle equipment and accessories required by this subchapter shall be maintained in compliance with all applicable performance and design criteria set forth in this subchapter."

Discussion

The first line supervisors of drivers are trained to recognize alcohol and controlled substance misuse. However, only about half of these supervisors have documented

knowledge of FMCSR (e.g., training course certificate). In some cases their supervisors/project manager are trained to both FMCSR and recognition of alcohol and controlled substance misuse. In one organization that has drivers, not one supervisor was trained to FMCSR. This lack of a qualified supervisor within an organization that supervises/dispatch drivers raises a concern of whether or not FMCSR are being complied with in other areas such as, but not limited to, drivers' hours of service and maintaining drivers' vehicle inspection reports. It appears, however, that WCH training has initiated a shift in training philosophy from training just upper management (project manager and area field superintendants) to first line supervisors since about half of the first line supervisors are now trained to FMCSR.

Note: For a company where Motor Carrier Operation is not their primary business, only individuals directly involved with motor carrier operation are required to be knowledgeable of the FMCSR.

RL Lead Assessor Closure Required: YES No

Finding: S-09-SED-WCH-006-F02

Three drivers were not included in the drivers' pool for random sampling.

Requirements:

49 CFR 382.305(a) states: "Every employer shall comply with the requirements of this section. Every driver shall submit to random alcohol and controlled substance testing as required in this section."

Discussion

Three lists [WCH organization chart, WCH drivers list, and list of drivers provided by Fluor Hanford, Inc. (FHI) of WCH drivers in the DOT drivers' pool] were compared. Three WCH drivers on the WCH organization chart were not on the other two lists. Discussions with the WCH labor relations manager confirmed these drivers were not included in the drivers' pool maintained by FHI but should have been included. One driver had recently had returned from long term disability.

RL Lead Assessor Closure Required: YES No

Finding: S-09-SED-WCH-006-F03

The WCH Employee Assistance Program does not restrict drivers who admit to alcohol misuse or controlled substance use from performing safety-sensitive functions.

Requirements:

49 CFR 382.121 states: (a) Employees who admit to alcohol misuse or controlled substances use are not subject to the referral, evaluation and treatment requirements of this part and Part 40 of this title, provided that:

- (1) The admission is in accordance with a written employer-established voluntary self-identification program or policy that meets the requirements of paragraph (b) of this section;
- (2) The driver does not self-identify in order to avoid testing under the requirements of this part;
- (3) The driver makes the admission of alcohol misuse or controlled substances use prior to performing a safety-sensitive function (i.e., prior to reporting for duty); and
- (4) The driver does not perform a safety-sensitive function until the employer is satisfied that the employee has been evaluated and has successfully completed education or treatment requirements in accordance with the self-identification program guidelines.

Discussion

The WCH Employee Assistance Program (PN-HR-11) does not restrict drivers who request assistance with alcohol or controlled substance problems from performing safety-sensitive functions such as driving a commercial motor vehicle. Drivers can perform other duties until they have completed the prescribed education or treatment, and have received negative return to duty alcohol and controlled substances test results.

RL Lead Assessor Closure Required: YES No

Finding: S-09-SED-WCH-006-F04

The WCH Fitness for Duty Procedure limits follow-up testing for controlled substances and alcohol to one year; DOT regulations allow follow up testing for up to 5 years at the discretion of the Substance Abuse Professional.

Requirements:

49 CFR 40.307 states: “(d) However, you must, at a minimum, direct that the employee be subject to six unannounced follow-up tests in the first 12 months of safety-sensitive duty following the employee’s return to safety-sensitive functions.

- (1) You may require a greater number of follow-up tests during the first 12-month period of safety-sensitive duty (e.g., you may require one test a month during the 12-month period; you may require two tests per month during the first 6-month period and one test per month during the final 6-month period).
- (2) You may also require follow-up tests during the 48 months of safety-sensitive duty following this first 12-month period.

- (3) You are not to establish the actual dates for the follow-up tests you prescribe. The decision on specific dates to test is the employer's.
- (4) As the employer, you must not impose additional testing requirements (e.g., under company authority) on the employee that go beyond the SAP's follow-up testing plan."

Discussion

The WCH Fitness for Duty (BSC-1-1.10) procedure states "Upon return to work, the employee will be subject to routine, periodic, and probationary testing for a period of one year following his/her return to work." This is inconsistent with DOT regulations. 49 CFR 40.307 provides requirements for the designated Substance Abuse Professional (SAP). This function is performed for WCH by Advanced Med Hanford. The employer cannot specify a maximum period of time for follow-up testing for a driver being subject to a DOT follow-up testing plan. Only the SAP is authorized to specify the duration of follow-up controlled substance use and alcohol misuse testing. The SAP can require the driver to be subject to follow-up tests for up to 48 months of safety-sensitive duty after this first 12-month period or a total of 5 years.

RL Lead Assessor Closure Required: YES No

Observation: S-09-SED-WCH-006-O01

WCH has only identified one designated employer representative (DER), which may impact WCH ability to remove a driver from performing safety-sensitive functions.

Discussion

With only one DER identified, WCH is limiting their ability to receive notification of a positive test result or refusal to test from the Medical Review Officer, thus also limiting their ability to remove a driver from performing safety-sensitive functions in a timely manner. If the identified DER is unavailable due to vacation, illness, accident, or job relocation, WCH loses its ability to receive positive test results or notification from the MRO, collector, or breath alcohol technician concerning refusal to test issues.

RL Lead Assessor Closure Required: YES No

Observation: S-09-SED-WCH-006-O02

During investigation of a potential new hire driver, WCH is not documenting phone conversations with past employers in attempts to attain required driver's safety performance history.

Discussion

WCH does maintain documents of all written correspondences between potential new hire driver's previous employers and WCH. However, WCH does not maintain a written record documenting telephones calls requesting previous employers to provide requested information concerning drivers' safety performance history. By having a written record of telephone conversations within previous employers, WCH will improve their case with DOT for a "good faith" effort to obtain this information if the previous employer fails to provide the information.

RL Lead Assessor Closure Required: YES No

Observation: S-09-SED-WCH-006-O03

The DER has not received training appropriate for DER responsibilities.

Even though the DOT regulations do not require specific training for a DER, there are training courses available. During the interview of the DER, he had good knowledge of the DOT regulations associated with DOT controlled substance and alcohol regulations. However, we did discuss some sections of the regulations for which a motor carrier should have established processes. WCH has not established some of these processes (for example, dealing with dilute negative test results). WCH has not determined whether or not to retest the driver. Additional training for the DER would provide better assurance that other items are not overlooked.

RL Lead Assessor Closure Required: YES No

Good Practices:

Areas that were inspected or previously inspected, and found to be satisfactory:

- The PM-LR-1 contained the required 11 elements per 49 CFR 382.601(b).
- WCH has scheduled a self-assessment of their program in 3rd quarter of FY2009.
- WCH does receive statistical summaries from an approved laboratory.
- WCH utilizes FHI consortium/Third-party administrator for random selection and record retention. (RL has previously assessed this program.).
- WCH utilizes Advanced Medical Hanford, Inc. for specimen collection, alcohol testing, and Substance Abuse Professionals services. (RL has previous assessed this program.).

The Surveillant did provide comments on documents reviewed. These comments provide addition clarity and correct minor administrative errors.



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

09-SED-0115

MAY 22 2009

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 FAST FLUX TEST
FACILITY (FFTF) HEAT STRESS (SURVEILLANCE REPORT S-09-SED-PRC-007)

The purpose of this letter is to transmit RL Surveillance Report 2-09-SED-PRC-007 dealing with FFTF Heat Stress. This report documents two findings and four observations. No formal response is required; however, please note that RL is requesting closure authority for the two findings. RL also requests that CHPRC involve the Lead Assessor in the corrective action process. If you have any questions, please contact me or Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jan Osso".

Jan Osso
Contracting Officer

SED:SLB

Attachment

cc w/attach:

M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering (SED)

Surveillant: Steve Bertness (Lead Assessor), Joy Flack, Ron Johnson

Surveillance Number: S-09-SED-PRC-007

Date Completed: April 14, 2009

Contractor: CH2M Hill Plateau Remediation Company (PRC)

Facility: Fast Flux Test Facility

Title: Heat Stress

Guide: NA

Surveillance Scope:

The surveillance covered RL's investigation into an event at the Fast Flux Test Facility (FFTF) on Wednesday, February 25, 2009. The incident involved a Radiation Control Technician (RCT) who was involved in a work activity at FFTF to remove a wooden ladder from a contamination area (CA). The work crew and the RCT were dressed in anti-contamination clothing and were using negative pressure air purifying respirators (APRs). During the activity, the RCT notified the crew that he felt ill and needed to leave the CA. He was helped from the CA and was transported to Kadlec Medical Center, where he was treated for "moderate heat exhaustion". Subsequent investigation indicated that the individual had not taken prescription medication for high blood pressure and anxiety. PRC personnel performed a post-job following the meeting and when additional questions remained, the project performed a Human Performance Improvement investigation titled "FFTF RCT Hospitalization". This reactive surveillance was performed to capture the issues that were not adequately addressed by the PRC investigation.

Surveillance Summary:

The surveillance was conducted from February 26, 2009 through April 9, 2009 by the RL Industrial Hygienist, Safety and Health Specialist, and the cognizant Facility Representative.

The surveillance indicated that the PRC's hazard identification during the planning of this work did not properly identify known workplace hazards and properly develop controls to mitigate those hazards. Additionally, PRC's response to the events that occurred on February 25, 2009 was not consistent with a rigorous, mature Integrated Safety Management System safety culture. The surveillance identified 2 findings and 4 observations.

- **S-09-SED- PRC-007-F01:** PRC did not adequately implement the heat stress requirements of the American Conference of Governmental Industrial Hygienists as required by HNF-PRO-121, *Heat Stress Control*.
- **S-09-SED- PRC-007-F02:** The contractor failed to record this event as required by Occupational Safety and Health Administration (OSHA) Standards.
- **S-09-SED-PRC-007-O1:** PRC did not provide appropriate respiratory protection requested by workers.
- **S-09-SED- PRC-007-O2:** The mock up that was performed did not accurately portray known conditions.
- **S-09-SED- PRC-007-O3:** Communication of investigation results between PRC and RL were not fully effective.
- **S-09-SED- PRC-007-O4:** A formal critique meeting for work related injury was not performed.

Surveillance Results:

Finding: S-09-SED- PRC-007-F01:

PRC did not adequately implement hazard identification and control procedures or the heat stress requirements of the American Conference of Governmental Industrial Hygienists as required by HNF-PRO-121, *Heat Stress Control*.

Requirement(s):

DOE CRD O 414.1A Criterion 5 requires work to be performed consistent with standards adopted to meet regulatory or contract requirements using approved instructions, procedures, etc.

HNF-PRO-121, *Heat Stress Control*, requires compliance with the most recent version of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) Guide.

HNF-PRO-079, Job Hazard Analysis, Section 4.0 Requirements Step 3 which states: “During the development or revision of written work instructions or procedures, the job hazard analysis process will be used to identify and document existing and potential workplace hazards and assess the risk of associated workers injury and illness.”

HNF-PRO-12115, Work Management, Section 5.2.3 Plan Work Step 16.a which states in part:

“Incorporate controls from the hazard analysis process into the work instructions or WD. Refer to HNF-GD-12116, Appendix M, for guidance in this area....”

Discussion

RL reviewed the Automated Job Hazard Analysis (AJHA) (4F-913) associated with work document 4A-08-07020, DECON 1 Entry and found box 36, Thermal Stress (heat or cold stress/hypothermia) checked No. During the pre-job brief (Reference OA-21878) the Field Work Supervisor mentioned the temperature in the room was lowered to support DECON 1 work and workers should stop work if they feel ill or sweat through their Personnel Protective Equipment (PPE). The use of an engineering control (i.e. lowering room temperature) and other measures to mitigate heat stress were not identified and documented in the AJHA or in procedure 4A-08-07020. In addition, although there was some discussion about heat stress mitigating actions (hydration), no systematic process (e.g. checklist) was used to prompt the workers to hydrate themselves, eat, or identify if there were any other conditions (ill, medication, personal distraction) that would hamper their fitness for duty to enter a hazardous environment in multiple layers of PPE.

Conditions in the workplace (temperature lowered to 66 degrees F, heavy, frequent or awkward lifting, as described in the AJHA for this task) combined with PPE required to enter the area, indicate that the contractor should have established a 75% work 25% rest schedule to manage the risk of heat stress to the workforce based on application of ACGIH criteria. The timeline provided by the contractor indicates that the employee was in the work area for 65 minutes without a break. The contractor has argued that this work does not meet the criteria for heavy work as defined by the procedure and by the ACGIH. While this may or may not be accurate, there is no evidence that the project evaluated the potential for heat stress before conducting the work in spite of implementing an engineering control (lowering the temperature in the cell) to address high temperatures in the work area.

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

Finding: S-09-SED- PRC-007-F02:

The contractor failed to record this event as required by Occupational Safety and Health Administration (OSHA) Standards.

Requirement(s)

10 CFR 851.23 Safety and health standards

(a) Contractors must comply with the following safety and health standards that are applicable to the hazards at their covered workplace:

(2) Title 29 CFR, Parts 1904.4 through 1904.11, 1904.29 through 1904.33; 1904.44 and 1904.46, "Recording and reporting Occupational Injuries and Illnesses

29 CFR 1904.5 Determination of work-relatedness

(a) Basic Requirement

You must consider an injury or illness to be work related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in Section 1904.5(b) (2) applies.

Discussion

Contrary to the above requirement, the PRC did not consider this event to be work related. The OSHA recording criteria in 29 CFR 1904.5(b)(2)(i) states that for an event of this nature to be non-recordable "The injury or illness involves signs of symptoms that surface at work but result solely from a non-work related event or exposure that occurs outside the work environment". RL does not dispute that the employee's failure to take prescribed medication contributed significantly, or even primarily, to this event. However, the reporting criteria use of the word "solely" requires that the employer eliminate the potential for any contribution of the work activity to the injury or illness. This criterion has clearly not been met in this case as the surveillants note that the affected worker was using a tight fitting air purifying respirator, was wearing a double set of anti-contamination clothing, and was treated for "moderate heat exhaustion." It is not reasonable to conclude that there was no potential contribution from the work environment.

Additionally, quoting from the contractors Human Performance Initiative (HPI) report, page 4, last paragraph:

"The stresses associated with this task, when coupled with his pre-existing medical conditions, could easily lead to a rapid rise in blood pressure, resulting in

a rapid increase in core body temperature, finally resulting in an over heating condition.”

Based on the contractor’s own analysis, the stresses associated with the task contributed to this event, clearly meeting the OSHA recording criteria.

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

Observation: S-09-SED- PRC-007-01:

PRC did not provide appropriate respiratory protection requested by workers.

Discussion:

PRC provided tight fitting air purifying respirators (APRs) for this work evolution. FFTF maintains that the workers were asked if they would prefer to wear powered air purifying respirators (PAPRs) but opted instead to wear APRs and insists that workers would have been provided PAPRs had they requested them. While the respiratory protection standard contains no requirement to provide PAPRs when APRs provide adequate protection, the preamble clearly reflects OSHA’s opinion that it is good industrial hygiene practice, particularly when heat stress is a concern, to provide workers with PAPRs. During employee interviews, several employees who indicated they had requested PAPRs in the past, but had been told none were available. All employees indicated that, given a choice, they would prefer to wear PAPRs. The conflicting nature of the information provided to, and reviewed by, RL is further justification for the opinion that a formal critique should have been held for this event and that a satisfactory ISMS safety culture has not been established by the contractor. It is RL’s expectation that workers be provided PPE which enhances their safety and comfort as indicated by the limited use of APRs on the Hanford site.

Observation: S-09-SED- PRC-007-02:

The mock up that was performed did not accurately portray known conditions

Discussion

RL does acknowledge the PRC’s good practice on taking the initiative to perform several mock ups on this relatively routine activity, although more realistic duplication of actual work conditions may have prevented the problems that occurred. The project was using Tack-It material in the work area for contamination control for the first time. Normally, Tack-It is used in step-off pads. Mock ups were ineffective in that the workers stated they did not wear rubber booties PPE during work simulation. During the actual performance of the work, the rubber booties were constantly adhering to the Tack-It material causing delays and forcing the crew to bend down and un-stick their booties, and on several occasions, a worker walked right out of his bootie. The practice of wrapping

the ladder with plastic sleeving was not the same in the mock up as in the field and this added more difficulty to the actual job.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-SED- PRC-007-O3:

Communication of investigation results between PRC and RL were not fully effective.

Discussion

An RCT performing work in a double set of anti-contamination clothing in the Decon cell at FFTF was transported to Kadlec hospital and was treated for heat stress. A critique as defined under HNF-PRO-058, Event Initial Investigation and Critique Process was not performed, although the project performed a post-job the following day. At the time of the event, the worker was diagnosed with moderate heat stress and was treated accordingly. Since the project was concerned about the sensitivity of the failure to take medicine, it was deemed more appropriate to perform a post-job review, followed by an HPI review performed over the next 3 weeks. The HPI investigation "resulted in no Organizational Weaknesses/Failed defenses" and did not answer the ongoing questions (nor was it intended to from the PRC perspective) RL had related to the facts surrounding the causes of the heat stress evaluation, planning, and control implementation in the work instructions. It was discovered on April 9, 2009 that the extent of the PRC investigation was broader than what was recognized by RL and the two parties had failed to communicate the complete results of the PRC investigation. In addition, it was learned that PRC has established Condition Reports for two of the issues and intends to take action to resolve the underlying causes. RL contends the critique procedure would allow for the use of personal statements and latitude on who attends and how the event related information is gathered and is the best vehicle for prompt, accurate investigation of abnormal events. It is recognized, however, that a critique is not always required to gain the necessary facts surrounding an event. Regardless of the method of investigation, it is critical that communication is adequate to support the necessary decisions and response to events.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-SED- PRC-007 -O4

A formal critique meeting for work related injury was not performed.

Discussion

An RCT performing work at FFTF was transported to Kadlec hospital and was treated for heat stress. A critique as defined under HNF-PRO-058, Event Initial Investigation and Critique Process was not performed. Step 5.1.5 lists Appendix A which refers to Appendix B (HNF-PRO-060 which is now PRC-PRO-EM-060). At the time of the

event, the worker was diagnosed with moderate heat stress and was treated accordingly. Since the project was concerned about the sensitivity of the failure to take medicine, it was deemed more appropriate to perform a post-job review, followed by an HPI review performed over the next 3 weeks. The critique procedure allows for the use of personal statements and latitude on who attends and how the event related information is gathered.

Based upon the different conclusions documented in this surveillance versus the results of the HPI review, all factors associated with the event were not sufficient to fully understand the event and a critique would have been useful.

RL Lead Assessor Closure Required: **YES** **NO**

Contractor Self-Assessment: This section was not evaluated because this was a reactive surveillance.

Contractor Self-Assessment Adequate: **YES** **NO**

Management Debriefed: Steve Dalgren, Patrice McEahern, Terry Vaughn, Bob Wilkerson, Bo Weir



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

MAY 26 2009

09-OOD-0034

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 – ELECTRICAL SAFETY CORE SURVEILLANCE
OF CHPRC FACILITIES AND PROJECTS**

An Electrical Safety Core Surveillance was performed at all of the CHPRC Facilities and Projects from January 12, 2009, through February 18, 2009. The objective of this surveillance was to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on AC and DC systems. The surveillance resulted in the identification of one Concern (S-09-OOD-GPP-001-C01), three Good Practices, 11 Findings, and 12 Observations. Overall the surveillance indicated satisfactory performance and knowledge relative to safe work practices in completing electrical maintenance and modification work. Copies of the surveillance reports, containing detailed discussions of the Concern, Findings, Observations, and Good Practices, and a roll up evaluation of the surveillance results, are incorporated in the attachments to this letter.

Although not the focus of this surveillance effort, the concern identified at the Groundwater project was related to work control implementation. In accordance with SCRD 470.2b (Supplemented Rev. 2), CHPRC is requested to provide a corrective action plan to address the concern discussed in the attached Groundwater Project Surveillance Report within 30 days of receipt of this letter.

You are requested to process the Findings and Observations from the attached reports through the CHPRC corrective action management process. As discussed in Attachment 1, the individual Findings and Observations concerning implementation of NFPA 70E, 2009 Edition should be evaluated across CHPRC Projects.

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.

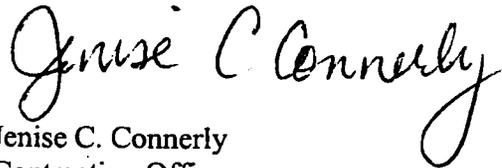
Mr. J. G. Lehew III
09-OOD-0034

-2-

MAY 26 2009

If you have any questions, please contact me, or your staff may contact Ray J. Corey, Assistant Manager for Safety and Environment, on (509) 376-0108.

Sincerely,



Jenise C. Connerly
Contracting Officer

OOD:RMI

Attachments

1. Roll-up Evaluation
2. Surveillance S-09-OOD-CHPRC-002
3. Surveillance S-09-OOD-LWFS-002
4. Surveillance S-09-OOD-SWOC-001
5. Surveillance S-09-OOD-BOS D&D-001
6. Surveillance S-09-OOD-GPP-001
7. Surveillance S-09-OOD-SNF-001
8. Surveillance S-09-OOD-PFP-002

cc w/attachs:

D. B. Cartmell, CHPRC
G. M. Grant, CHPRC
S. M. Kelley, CHPRC
M. R. Kembel, CHPRC
P. M McEahern, CHPRC
S. J. Turner, CHPRC

Hazardous Energy Control – Electrical Safety Core Surveillance Roll-up Evaluation

An Electrical Safety Core Surveillance was performed at all of the CHPRC Facilities and Projects from January 12, 2009, through February 18, 2009. The objective of this surveillance was to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on Alternating Current (AC) and Direct Current (DC) systems. The surveillance resulted in the identification of one Concern, three Good Practices, eleven Findings, and twelve Observations. Overall the surveillance indicated satisfactory performance and knowledge relative to safe work practices in completing electrical maintenance and modification work. All of the surveillances are attached.

The concern was generated during the performance of the Groundwater Core Surveillance (S-09-OOD-GPP-001-C01) and identified a number of issues relating to work control documentation representing multiple process weakness. The issues centered on the methodology selected to troubleshoot and repair the ZP-1 Well PE-02 heat trace circuit.

As a product of the Electrical Safety Core Surveillance a CHPRC cross cutting surveillance (S-09-OOD-CHPRC-002) was generated pertaining to issues identified with the conduct and issue disposition associated with ESHQ-OSH-08-MA-07, Rev 1, Lockout/Tagout Management Assessment and issues with overall Management Assessment and Integrated Evaluation Plan implementation. The surveillance is included in Attachment 2.

The observations described in S-09-OOD-SNF-001-002 and S-09-OOD-PFP-002-002 were indicative of a larger issue associated with the implementation of National Fire Protection Association (NFPA) 70E, 2009 Edition across the CHPRC complex and should be evaluated across the CHPRC Projects. From a programmatic perspective, letter CHPRC-0900027, dated January 26, 2009, implemented the 2009 Edition of NFPA 70E effective February 1, 2009, for all new work. The following represents some of the issues identified:

- Training on the Gap Analysis (developed prior to implementation) was not performed prior to implementation. The Electrical Safety Subject Matter Expert (SME) is in the progress of conducting the Gap Analysis training at the project level.
- The implementing document for Electrical Safety Requirements, HNF-RD-11827, was not revised prior to the implementation date. This document is currently in the process of being revised.
- The Automated Job Hazard Analysis (AJHA) tool used to aid in the determination of electrical safety hazard controls was not revised prior to implementation even though changes to Personnel Protective Equipment (PPE) arc flash hazard requirements changed.

- Personnel in the field such as Electrical SMEs, Field Work Supervisors, Planners, etc. were not aware that the 2009 edition was effective Feb 1, 2009, though most were aware that the 2009 version existed.

There were instances where work packages developed after the February 1, 2009, implementation date contained electrical safety hazard controls based on the 2004 vice 2009 edition; mostly in the area of standing AJHAs. However, there were no identified cases where work was released with inadequate PPE controls.

Below is a listing of the Concern, Findings, Observations, and Good Practices:

S-09-OOD-GPP-001-C01	Work control documentation issues representing multiple process weaknesses were identified.
S-09-OOD-CHPRC-002-F01	Deficient conditions identified at Soil & Groundwater Remediation Project (SGRP) during a hazardous energy control management assessment activity were not documented for submission to the Corrective Action Management process.
S-09-OOD-CHPRC-002-F02	Assessment reports are not written clearly to identify specific impacts of each facility being assessed.
S-09-OOD-GPP-001-F01	Five issues were identified with the methodology selected for troubleshoot and repair of the ZP-1 Well PE-02 heat trace circuit.
S-09-OOD-GPP-001-F02	More steps of a work package were performed than authorized by a Partial Release.
S-09-OOD-GPP-001-F03	The work release type had not been designated for several in-progress and completed work packages.
S-09-OOD-GPP-001-F04	An unapproved work procedure was integrated into a work package.
S-09-OOD-GPP-001-F05	Verification of work completion was not documented on a Tagout Authorization Form (TAF) prior to locks and tags being removed.
S-09-OOD-LWFS-002-F01	Electricians walked on Effluent Treatment Facility (ETF) system components to access work area.

S-09-OOD-LWFS-002-F02	The Field Work Supervisor (FWS) did not adequately apply Human Performance Improvement (HPI) during a pre-job briefing at Canister Storage Building (CSB).
S-09-OOD-SWOC-001-F01	Maintenance on fault current protective devices is not adequately performed for Switchgear or Motor Control Centers at WRAP and T-Plant.
S-09-OOD-SWOC-001-F02	The arc flash hazards/risk category used for operating WRAP switchgear/breaker SG-13-101/F4D was not consistent with the NFPA 70E, 2004 Edition Hazard/Risk Category Classification table.
S-09-OOD-BOS D&D-001-001	Work Package CP-08-02017 missing Industrial Safety Review during the work planning phase.
S-09-OOD-BOS D&D-001-002	Independence may have been compromised during independent verification of controlling organization Lockout/Tagout on breaker C5X71.
S-09-OOD-BOS D&D-001-003	NFPA 70E training for certain Central Plateau Surveillance & Maintenance (CPS&M) positions could improve consistent understanding of requirements.
S-09-OOD-GPP-001-001	An active means of identifying a 24-volt power source was not established during the performance of work package GW-09-00281/W.
S-09-OOD-PFP-002-001	During the review of criticality alarm system battery maintenance work packages, inconsistent and/or inaccurate information about hazards, controls and work processes was noted.
S-09-OOD-PFP-002-002	Communication about implementation of the revised NFPA 70E, 2009 Standard for Electrical Safety in the Workplace was an opportunity for improvement.
S-09-OOD-PFP-002-003	Opportunities to improve work package development and use were identified.
S-09-OOD-PFP-002-004	Data recorded in table field does not match table column headings.

S-09-OOD-PFP-002-005	Ladder was less stable than expected when worker ascended and descended on it.
S-09-OOD-SNF-001-001	Lockout/Tagout instructions associated with the work packages reviewed were non-consistent in detail provided.
S-09-OOD-SNF-001-002	Project personnel did not realize that the 2009 version of NFPA 70E was implemented as of February 1, 2009.
S-09-OOD-SWOC-001-001	SWOC Facility Arc Flash Hazard Analysis Not Formally Issued or Periodically Reviewed
Good Practice (GPP)	Craft personnel involved in the repair of extraction well H4-63 manifold performed a safe-to-work check prior to resuming work after leaving the work area for lunch.
Good Practice (SNF)	Energized Work Permits planned for and utilized for Work Packages 1K-08-5371 and 5372 involving repair and/or replacement of Service Water Pump motors.
Good Practice (SNF)	Balance of Site Procedure, BOS-PRO-001, was utilized in preparation of Work Package 1K-08-06852, involving the demolition of various mobile offices.

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: Kerry Schierman, Sharee Dickinson

Surveillance Number: S-09-OOD-CHPRC-002

Date Completed: February 18, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Cross-Cutting

Title: Hazardous Energy Control (HEC) – Electrical Safety Core Surveillance

Guide: Lines of Inquiry Established in Core Surveillance Guide 19.2

Surveillance Scope:

The objective of this surveillance is to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on AC and DC systems. During performance of this surveillance scope across CHPRC projects, several cross-cutting issues were identified in the area of management assessment implementation and were captured in this surveillance.

Surveillance Summary:

As an element in the performance of the subject core surveillance, Facility Representatives (FR) reviewed management assessment activities related to the topical area. In doing so, issues were identified with a cross-cutting management assessment (ESHQ-OSH-08-MA-07, Rev 1), performed to fulfill 29 CFR 1910.147(c)(6) requirements for annual inspections of the hazardous energy control procedure and process.

The following cross cutting management assessments were reviewed and identified issues concerning the implementation of HNF-PRO-246:

- FH-OA-IA-07-05, Evaluation of Corrective Actions taken as a result of HEC – Recurring Issues EM-RL-PHMC-GENERAL-2006-0002;

- SH-OSH-07-MA-04, Equipment Operations Near Overhead Electrical Lines;
- SH-OSH-07-MA-015, Perform an Effectiveness Review of the Site's Ground-fault circuit interrupter (GFCI) Testing Programs;
- ESHQ-OSH-08-MA-013, Electrical Safety Program Action Effectiveness;
- ESHQ-OSH-08-MA-10, GFCI Facility Level Policy Review;
- ESHQ-OSH-08-MA-07 Rev 1, Annual HEC Periodic Review; and
- SHS&Q-OSH-09-MA-004, Assess Personal Protective Equipment During Electrical Tasks Within Each Project.

Three findings and one observation were documented:

S-09-OOD-CHPRC-002-F01 Deficient conditions identified at Soil & Groundwater Remediation Project (SGRP) during a HEC management assessment activity were not documented for submission to the Corrective Action Management process.

S-09-OOD-CHPRC-002-F02 Assessment reports are not written clearly to identify specific impacts of each facility being assessed.

Surveillance Results:

Finding: S-09-OOD-CHPRC-002-F01

Deficient conditions identified at Soil & Groundwater Remediation Project (SGRP) during a HEC management assessment activity were not documented for submission to the Corrective Action Management process. (OA #21562)

Requirement:

HNF-PRO-246, Section 5.5.2 and 3, state the Performing Manager, "Document[s] each finding and OFI on an Issue Identification Form (IIF) (Site Form A-6002-898). Complete IIF(s) through the Responsible Manager Owning the Issue (RMOI) signature block, block 9, as a minimum...Include IIF(s) with the Management Assessment Report in Section 5.6."

Discussion:

As part of the surveillance process for a HEC review on at the SGRP, the FR requested the project and the central management assessment organization provide any available assessment information in the area of HEC. The FR was provided a Project Hanford Management Contract-wide annual HEC program assessment (ESHQ-OSH-08-MA-07) issued in August 2008, to meet 29 CFR 1910.147(c)(6) periodic inspection requirements. No SGRP deficient conditions were identified in the report (either in narrative discussion or within listed Corrective Action Record File/Action Requests [CARF]). However, FR follow-up determined an assessor had performed a review at SGRP in June 2008, and

documented a number of findings/opportunities for improvement on periodic review forms associated with the assessment activity. The assessor provided an email that had submitted the information to the assessment team lead and also documented that the information had been provided to an SGRP supervisor. Contrary to the above requirement; however, the information was not documented on an IIF, nor identified in the management assessment report.

Although the condition was not initiated by CHPRC, the condition was not identified and resolved during the contract transition due diligence and the issue remains to be resolved.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-CHPRC-002-F02

Management assessment reports are not written clearly to identify specific impacts of each facility being assessed. (OA #21794)

Requirement:

HNF-PRO-246, Section 5.6.2a states, "Review the report and IIFs to ensure that these are clear and easy to understand. Ensure these include only facts that directly relate to the assessment, includes sufficient information to enable development of appropriate actions and includes discussion on satisfactory activities."

Discussion:

The following cross cutting management assessments were reviewed to evaluate the applicability to the PFP:

- FH-OA-IA-07-05, Evaluation of Corrective Actions taken as a result of HEC – Recurring Issues EM-RL-PHMC-GENERAL-2006-0002;
- SH-OSH-07-MA-015, Perform an Effectiveness Review of the Site's GFCI Testing Programs;
- ESHQ-OSH-08-MA-07 Rev 1, Annual HEC Periodic Review; and
- SHS&Q-OSH-09-MA-004, Assess Personal Protective Equipment During Electrical Tasks Within Each Project.

Though CHPRC Integrated Evaluation Report states the PFP was included in the evaluations, there is no clear evidence or discussion associated within any of the assessments to determine the specific results relative to PFP. Discussions within the document would also support feedback to the project per Section 5.7 of HNF-PRO-246. It is recognized that only one report was performed by CHPRC, the historical documents (performed by PHMC) were reviewed to identify if this is an isolated issue or an ongoing noncompliance. Based upon the results of the review, as described below, the noncompliance has not yet been resolved by CHPRC.

A similar situation was also identified in a previous RL Lockout/Tagout (LOTO) Surveillance completed in September 2007 (S-07-OOD-PFP-006-003). An excerpt from the surveillance report reads as follows, "During completion of the 2007 surveillance the FRs were provided a copy of the Spring 2006 Hanford Site Hazardous Energy Periodic Review. The review scope was identified as all FHI facilities. Attachment 1 was a table that summarized data about Tagout Authorization Forms by facility. PFP was not included in the table. Attachment 2 in the Hanford Site Hazardous Energy Periodic Review identified opportunities for improvement from at least three Hanford Site facilities. The five issues identified in the "Areas for the Project to Investigate" were not included in Attachment 2. Thus, there was evidence that the information from the PFP review may have been left out of the 2006 Hanford Site review."

In addition, a FR located at SGRP found that the management assessment report provided to him did not contain adequate information to determine the results of the associated review. (OA #21562) At the FR's request, the CHPRC IEP organization provided ESHQ-OSH-08-MA-07, Rev 1, as evidence of management assessment activities related to HEC at SGRP. A comparison of the report content to HNF-PRO-246 requirements identified a compliant report. However, the FR was not able to determine from the content of the document whether the documented scope of the review had been completed at SGRP (or any other project), or whether any SGRP issues had been identified. Because the review was described to have been guided by checklists there may have been existing backup documentation available, but it was not included in the record file of the management assessment provided to the FR. Because the report could meet HNF-PRO-246 content requirements without adequate information available to adequately describe the results, the FR questions whether HNF-PRO-246 instructions are adequate.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

The management assessment process includes a review and feedback element (HNF-PRO-246, Section 5.7). In this specific instance the process was not adequate to identify issues. An extended assessment of the effectiveness of the HNF-PRO-246, Section 5.7 elements was not conducted.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

M. W. Clayton, CHPRC

D. J. Wiatrak, CHPRC

Also provided to the following via email:

G. M. Grant, CHPRC, J. C. Hoffman, CHPRC, T. L. Vaughn, CHPRC

J. P. Kinz, CHPRC, H. E. Rew, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: CH Gunion

Surveillance Number: S-09-OOD-LWFS-002

Date Completed: February 10, 2009

Contractor: CH2M HILL Plateau Remediation Contractor (CHPRC)

Facility: Liquid Waste and Fuel Storage (LWFS)

Title: Electrical Safety

Guide: OSS 19.2

Surveillance Scope:

The objective of this surveillance was to verify that contractor personnel were using safe work practices in completing electrical maintenance and modification work on AC and DC systems at LWFS facilities. LWFS included the Effluent Treatment Facility (ETF), Canister Storage Building (CSB), Waste Encapsulation Storage Facility (WESF) and the 310 / 340 Liquid Effluent Facilities (LEF). The following activities were evaluated by the Facility Representative (FR) to determine effectiveness of the contractor's electrical safety program:

Activity 1 – Reviewed 3 to 5 work packages involving electrical work, one of which was a No-Planning Required or Minor Work Ticket.

Activity 2 – Observed completion of maintenance activities on electrical systems as described in the work package that was reviewed.

Activity 3 – Interviewed personnel qualified to perform electrical work to determine understanding of safety related work practices.

Surveillance Summary:

Activity 1

The FR reviewed the following work packages that were released and worked by CHPRC:

- Minor Work Ticket 09-EL021 – Replace micro switch ZS-60F-173.
- Preventive Maintenance (PM) EL-08-07220 – Monthly GFCI Testing at 310 LEF.
- Generic Work Item EL-0907978 – Temporary Configuration to Support Firmware Installation at ETF.
- PM EL-08-07269 - ETF Buffalo Forge Air Handlers in 2025 North Yard.
- EL-08-03197 / P - Annual Inspect / Cleaning of Uninterruptible Power Supply (UPS) System / Panel at CSB.

Activity 2

The following work evolutions were observed by the FR:

- PM on ETF's Buffalo Forge Air Handlers

The FR attended the pre-job briefing, reviewed work package EL-08-07269 and observed PM on ETF's Buffalo Forge Air Handlers in ETF's 2025 North Yard. This PM was performed on a quarterly basis, involved heater motor inspection, and measurements of MEGGER insulation resistance to ground and heater load resistance in panels JB-45B-E1B and JB-45B-E2B. The job involved controlling organization (CO) lockout/tagout of main switchgear and authorized worker over lock. The PM was accomplished by two electricians.

The pre-job briefing was conducted in a thorough and professional manner. All necessary items were discussed. Work package elements were reviewed to include procedure EL22024, data sheets and lock and tag documentation. Documentation was sufficient for the PM and electrical safety considerations. Electricians were experienced and had performed this PM numerous times.

The task required electricians to access panels which were mounted on the outside of the air handler unit and behind conduit and piping. For access to the unit, electricians walked on the conduit and piping to perform required tasks (see Finding F01 below).

- Canister Storage Building (CSB) – Inspect and Clean Uninterruptable Power Supply (UPS)

The FR attended the pre-job briefing, reviewed work documents and observed work activities associated with the annual PM of the CSB's UPS. The UPS supplied selected loads in the event of a power outage.

The annual PM included CO lock out of power feeds to the UPS, inspection and cleaning of the system. Workers followed maintenance procedure MP-18-001S, Inspect and Clean UPS. This procedure provided instructions for safe inspection, cleaning, and testing of the CSB UPS to include the system battery power source.

CSB and support maintenance personnel worked efficiently. Lockout/Tagout of the UPS was performed appropriately. The pre-job briefing covered the necessary elements of the task but failed to adequately apply the Human Performance Improvement (HPI) "Four Key Questions" (see Finding F02 below).

Activity 3

The FR conducted interviews for the subject core surveillance. LWFS personnel having responsibility for planning or performing electrical work were selected. Interviewees consisted of two electricians, a Field Work Supervisor (FWS) and electrical engineer / Design Authority (DA).

Interview questions were derived from National Fire Protection Association (NFPA) 70E, Standard for Electrical Safety in the Workplace (2009 Edition) and DOE-HDBK-1092-2004, Electrical Safety. Specific inquiry came from NFPA 70E Chapter 1, Article 120 - Establishing an Electrically Safe Work Condition and Article 130 - Work Involving Electrical Hazards, and DOE-HDBK-1092-2005 Section 6.5.8 - Storage Batteries and Battery Banks.

Electrical safety knowledge displayed by the interviewees on the above subjects ranged from good to excellent. For the personnel interviewed and the subject matter covered, the FR identified no issues.

The FR identified the following two findings during this surveillance:

- **Finding: S-09-OOD-LWFS-002-F01** Electricians walked on Effluent Treatment Facility (ETF) system components to access work area.
 - **Finding: S-09-OOD-LWFS-002-F02** The Field Work Supervisor (FWS) did not adequately apply HPI during a pre-job briefing at CSB.
-

Surveillance Results:

Finding: S-09-OOD-LWFS-002-F01

Electricians walked on Effluent Treatment Facility (ETF) system components to access work area. (IS-ELECT) (CONOPS-RTINES) (ISMS-WORK)

Requirement(s):

DOE 5480.19 Conduct of Operations Requirements for DOE Facilities, Chapter II, c.2. Safety Practices states in part, "Operators should not routinely climb or walk on facility components and insulation, because this could result in personnel injury or damage to equipment."

Discussion:

This finding was identified during the PM on ETF's Buffalo Forge Air Handlers.

The work space was confined by the piping and conduit runs. The electricians accessed the panels in the most efficient way possible given the conditions. However, this does not preclude adherence to proper Conduct of Operations. Extant conditions showed that climbing onto and over piping had led to damaged lagging.

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

Finding: S-09-OOD-LWFS-002-F02

The Field Work Supervisor (FWS) did not adequately apply HPI during a pre-job briefing at CSB. (IS-ELECT) (ISMS-IDHAZ)

Requirement(s):

HNF-PRO-14047, Conducting Pre-Job Briefings and Post-Job Reviews Section 5.2.4 states, "Assemble the work team and brief them on the following topics as they apply to the work. The minimum discussion topics for routine jobs are marked with an asterisk *.

- * Scope of work to be performed
Four key questions –
What are the critical steps of the work to be performed?
- * How could a mistake be made at a critical step?
What is the worst thing that can go wrong?
What barriers or defenses are needed?"

Discussion:

This finding was identified during the pre-job for the PM to clean and inspect the CSB UPS.

The required HPI four key questions were cursorily reviewed but details of the electrical task and how the questions would apply were not explored. The third key question, "What is the worst thing that can go wrong?" was answered, "Somebody could get hurt." This answer, while recognized as "something that could go wrong" and an undesirable event, did not have specific value to the task being performed. This generic answer could apply to any part of the work day but failed to focus on a specific intrinsic risk. Questions 1 and 4 were not covered at all, ostensibly due to the overarching value placed on question 3. Question 2 appeared to be overshadowed by the generic answer to question 3.

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

Contractor Self-Assessment:

The FR requested completed contractor self-assessment reports evaluating electrical safety or hazardous energy control for LWFS facilities during the last year. The contractor supplied one Quality Assurance (QA) surveillance of the LWFS performed in February 2008. Surveillance scope was to "verify the implementation of HNF-PRO-081, Revision 15, Lockout/Tagout." The report appeared to be a checklist that sought to determine compliance with requirements. There was no indication of the "performance assessment" element of hazardous energy control or electrical safety. A Management Assessment (MA) was scheduled for the second quarter of FY 09 to evaluate implementation of the new site wide Lockout/Tagout procedure at LWFS. The MA had not been completed as of this writing.

A reactive surveillance, S-09-OOD-LWFS-001, was performed by the RL FR in October 2008. The surveillance was in response to a hazardous energy control event at the Waste Encapsulation Storage Facility (WESF). An Observation in that surveillance, S-09-OOD-LWFS-001-O3, was identified for inadequate contractor self-assessment at that time. FR evaluation of LWFS self-assessment activities in the October report remained consistent with this surveillance.

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

Management Debriefed:

James Sickels, CHPRC

Department of Energy Richland Operations Office (RL) Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: DH Splett, JE Trevino, CA Ashley

Surveillance Number: S-09-OOD-SWOC-001

Date Completed: February 18, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Solid Waste Operations Complex (SWOC)

Title: Electrical Safety

Guide: OSS 19.2 Electrical Safety

Surveillance Scope:

The objective of this surveillance was to verify that contractor personnel used safe work practices in completing electrical maintenance and modification work on AC and DC systems. This surveillance was directed toward aspects of electrical safety other than use of personal protective equipment and lockout/tagouts.

Surveillance Summary:

The facility representatives reviewed electrical work packages, observed performance of electrical work and interviewed facility electricians and engineering personnel at SWOC facilities. Two Findings and one Observation were identified:

- **S-09-OOD-SWOC-001-F01** Maintenance on fault current protective devices is not adequately performed for Switchgear or Motor Control Centers at WRAP and T-Plant.
- **S-09-OOD-SWOC-001-F02** The arc flash hazards/risk category used for operating WRAP switchgear/breaker SG-13-101/F4D was not consistent with the NFPA 70E, 2004 Edition Hazard/Risk Category Classification table.

- **S-09-OOD-SWOC-001-001** SWOC Facility Arc Flash Hazard Analysis Not Formally Issued or Periodically Reviewed
-

Surveillance Results:

Finding: S-09-OOD-SWOC-001-F01

Maintenance on fault current protective devices is not adequately performed for Switchgear or Motor Control Centers at WRAP and T-Plant. (MAINT- ACT, IS-ELECT, CONOPS-PROCS, ISMS-WORK)

Requirements:

NFPA 70E, *Standard for Electrical Safety in the Workplace*, 2004 Edition, Article 210, Substations, Switchgear Assemblies, Switchboards, Panelboards, Motor Control Centers, and Disconnect Switches, paragraph 210.5 states, "Protective Devices shall be maintained to adequately withstand or interrupt available fault current."

NFPA 70E, *Standard for Electrical Safety in the Workplace*, 2009 Edition, adds a note to the above referenced citation, "Failure to properly maintain protective devices can have an adverse effect on the arc flash hazard analysis incident energy values."

Discussion:

General Preventive Maintenance (PM) of electrical equipment, switchgear and motor control centers, is not being routinely performed at T-Plant or WRAP. This includes periodic maintenance of protective devices such as fault current trip functions. Discussion with facility personnel indicate that periodic routine maintenance had been performed in the past at T-Plant but this practice was discontinued in the mid nineteen nineties for budgetary reasons. Routine maintenance on protective devices was also discontinued. Engineering stated that although some new T-Plant maintenance procedures have been prepared these have not been scheduled into the maintenance planning system.

PM of WRAP switchgear was also discussed with WRAP engineering personnel. PM of WRAP switchgear and breakers has not been performed since initial installation and testing which was greater than 10 years ago, including maintenance on protective devices. The need for PM of the WRAP switchgear and breakers has been discussed by WRAP engineering, maintenance and operations personnel over time and some PM procedures have been drafted, but this maintenance has not received priority to support approval or performance of the PMs.

While management discretion may be appropriate for determining the performance of general maintenance on electrical equipment, the NFPA 70E standard does at least require maintenance of protective devices.

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

Finding: S-09-OOD-SWOC-001-F02

The arc flash hazards/risk category used for operating WRAP switchgear/breaker SG-13-101/F4D was not consistent with the NFPA 70E, 2004 Edition Hazard/Risk Category Classification table. (IS-ELECT, CONOPS-PROCS, ISMS-ANLYZE)

Requirements:

NFPA 70E, *Standard for Electrical Safety in the Workplace*, 2004 Edition, Table 130.7(C)(9), *Hazard/Risk Category Classifications*, lists minimum Hazard/Risk Category 1 for work under "Other 600V Class (277 V Through 600 V nominal) Equipment."

Discussion:

On February 13, 2009, arc flash hazard/risk category "0" was identified and used to identify required Personal Protective Equipment (PPE) for operating WRAP switchgear/breaker SG-13-101/Breaker F4D. This work was being performed on WRAP maintenance work package MWT-09-001, *Electrical Maintenance Support Actions*. This package was released for work on January 5, 2009, therefore the applicable standard which covered this work at the time it was released was the 2004 version of NFPA 70E.

During this operation, the switchgear enclosure door was opened to allow closing the breaker/switchgear. Standard NFPA 70E, 2004, Table 130.7(C)(9), Other 600 V Class (277 V through 600 V nominal) Equipment), was applicable to this work. Hazard/risk category 1 is identified as the minimum hazard category for work under this section of the standard. Category 1 requires the following PPE; fire retardant (FR) clothing with minimum arc rating of 4 (arc-rated long-sleeve shirt, pants, coverall, face shield or arc flash suit hood, jacket) and FR hard hat, safety glasses, hearing protection, leather gloves, and leather work shoes. Category 0 requires only protective clothing (shirt and pants of nonmelting or untreated natural fiber) and FR safety glasses, hearing protection, and leather gloves. Identifying the proper arc flash hazard/risk category is important to identify the appropriate PPE that must be used for protections against an unexpected arc flash event.

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

Observation: S-09-OOD-SWOC-001-001

SWOC Facility Arc Flash Hazard Analysis Not Formally Issued or Periodically Reviewed. (IS-ELECT, ISMS-FEEDBK)

Discussion:

The WRAP facility electrical equipment Arc Flash Boundary analysis is contained in a three ring binder labeled WRAP Electrical Shock & Arc Flash Hazard Handbook. This binder is available to maintenance and operations personnel when planning and performing work on electrical

components at the facility, however the handbook is not actually issued as a facility controlled document.

T-Plant also has arc flash analysis calculations which have been completed for facility electrical components. These calculations exist as an engineering document within the engineering department, but also have not been issued as a controlled facility document.

NFPA-70E 2009, *Standard for Electrical Safety in the Workplace*, Article 130.3, *Arc Flash Hazard Analysis*, states: The arc flash hazard analysis shall be updated when a major modification or renovation takes place. It shall be reviewed periodically, not to exceed five years, to account for changes in the electrical distribution system that could affect the results of the arc flash hazard analysis. Since the WRAP and T-Plant arc flash analysis are not formally issued there is no current mechanism to control changes or ensure that these analyses are periodically reviewed.

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

Contractor Self-Assessment:

CHPRC has no contractor management self assessments in the area of electrical safety or hazardous energy control scheduled at any of the Solid Waste Operations Complex facilities during the upcoming FY 2009 timeframe. Since the contract transition took place at the start of FY 2009 and this surveillance was primarily concerned with CHPRC management practices the surveillants focused on upcoming assessments. However, discussions with various facility management and engineering personnel indicated that electrical safety assessments were not performed in 2008.

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

Management Briefing:

R. J. Bottenus, CHPRC
T. J. Fulton, CHPRC
S. L. Metzger, CHPRC
S. Mortensen, CHPRC
T. C. Synoground, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant(s): Ron Johnson

Surveillance Number: S-09-OOD-BOS D&D-001

Date Completed: February 12, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Central Plateau Surveillance & Maintenance (CPS&M), Fast Flux Test Facility (FFTF), Balance of Site (BOS) Deactivation & Decommissioning (D&D)

Title: Electrical Safety Core Surveillance

Guide: OSS 19.2

Surveillance Scope:

The scope of this surveillance is to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on AC and DC systems.

Surveillance Summary:

The Facility Representative (FR) performed the following activities in order to evaluate CPS&M Programs:

- Attended several plan of the day meetings.
- Reviewed four completed work packages for CPS&M activities:
 - CP-08-00367, B-Plant Act Pre-Filter Change;
 - CP-07-06839, Extend 291-U Electric Service Riser;
 - CP-08-02017, 271-U Elevator Inspection with 3rd Party; and
 - CP-08-01642, 271-U Elevator Inspection.
- Attended a job walk down.
- Observed three maintenance jobs for CPS&M:
 - CP-08-01199/W, 292-AB Repair/Replace PUREX Vacuum Pumps P-V-19-1&2;

- CP-09-00606/I, Calibration of Eberline AMS-4 CAM #1 & 2; and
- CP-08-07851/P, 221-BK, Inspect & Lube EF-101 & 102.
- Observed work activity at FFTF involving input from another FR.
- Electrical Utility (EU) Work Order 6B-08-72029 (FFTF Switching Support).
- Interviewed two CPS&M Nuclear Chemical Operators (NCOs), one CPS&M Shift Operating Engineer (SOE), and one CPS&M Shift Operations Manager (SOM).
- Interviewed one BOS D&D Electrician and one Field Work Supervisor (FWS) assigned to Cold & Dark operations.

The FR reviewed four completed work documents that were randomly selected by the CPS&M Work Control Lead. The work documents included corrective maintenance and preventative maintenance (PM) work packages. One document was missing the Industrial Safety review (See Observation 1).

FR observed work activities out in the field and it appeared electrical safety was incorporated into the work documents and practiced. Some minor observations were noted related to the Lockout/Tagout (LOTO) process during PUREX vacuum pump repair work where the tagging details that were to be used to place the equipment in a safe configuration were insufficient. Since the equipment was incapable of being placed in a safe condition, the FWS needed to stop establishing the isolation boundary per the Tagout Authorization Form (TAF) and try to figure a way to back out of the TAF to return the equipment back to normal configuration. Another work activity observed at the FFTF involved both the initial person hanging tags and the independent verifier checking tags to be in close proximity with each other which is not consistent with the independence requirements for these personnel performing these functions (See Observation 2).

FR interviewed CPS&M personnel and was told during the interview process by the SOE and NCOs that they are not specifically trained on NFPA 70E even though they were able to provide generic answers to the questions asked of them (See Observation 3). During the interview with the CPS&M SOM he did state that he was trained on various parts of NFPA 70E, through the accumulation of multiple courses that he had taken that touch on the subject.

The FR considers the Electrical Safety Programs to be satisfactory and the activities appeared to meet requirements with only a few minor exceptions.

Three observations were generated:

- **S-09-00D-BOS D&D-001-O01** Work Package CP-08-02017 missing Industrial Safety Review during the work planning phase.
- **S-09-00D-BOS D&D-001-O02** Independence may have been compromised during independent verification of controlling organization Lockout/Tagout on breaker C5X71.

- **S-09-OOD-BOS D&D-001-O03** NFPA 70E training for certain CPS&M positions.
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Surveillance Results:

Observation: S-09-OOD-BOS D&D-001-O01

Work Package CP-08-02017 missing Industrial Safety Review during the work planning phase.

Discussion:

The FR reviewed four completed work documents that were randomly selected by the CPS&M Work Control Lead. The work documents included corrective maintenance and PM work packages. This review looked at Activity 1 requirements listed in the Electrical Safety Core Surveillance.

Work Package CP-08-02017, 271-U Elevator Inspection with 3rd Party did not list or show an Industrial Safety (IS) signature for the work planning process. The positions identified by the Design Authority to perform work package planning reviews for this particular document did not identify the IS in the planning process. The Design Authority is required to identify other disciplines involved in the work approval process per HNF-PRO-12115, Work Management. The IS representative review was performed for 271-U Elevator work package, but not for the work package involving a 3rd party inspection of the same elevator. Although the planning for this task occurred prior to CHPRC transition, the omission should have been identified and resolved prior to release for work.

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

Observation: S-09-OOD-BOS D&D-001-O02

Independence may have been compromised during independent verification of controlling organization Lockout/Tagout on breaker C5X71

Discussion:

The FR observed EU switching activities outside of FFTF to provide an outage and support facility maintenance. EU Linemen were questioned on electrical safety practices and Personal Protective Equipment for the job. One observation was noted during the hanging of the controlling organization tag. The tagout independent verifier was in the same work area while the pole switch was being opened and within close proximity of the tagout installer. Independent verification of tags per the TAF was not observed by the FR.

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

Observation: S-09-OOD-BOS D&D-001-003

NFPA 70E training for certain CPS&M positions could improve consistent understanding of requirements.

Discussion:

FR interviewed CPS&M and Cold and Dark D&D personnel on two separate dates (1/29/09 and 2/2/09). Questions asked during the interview process came from the Electrical Safety Core Surveillance Guide. The interviewees included NCOs (2), SOE, SOM, Electrician, and a FWS. One observation was noted during the interview process.

During the interview process the NCOs (2) and the SOE mentioned that they received little to no training related to NFPA 70E. However, each individual provided responses to sufficiently answer the questions in the Core Surveillance Guide. The responses were based on a combination of work experience and the formalization of multiple training courses taken (i.e. LOTO) and not on a specific NFPA 70E course. Training (modified/abbreviated NFPA 70E) should be considered for those individuals who are required to perform LOTO of electrical hazards, safe conditions checks, or safe to work checks.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

The FR reviewed the Integrated Evaluation Plan for CY 2008 and CY 2009 (1st Quarter) for any Management Assessments (MA) performed in the Electrical Safety area. No specific MA was found in the review related to Electrical Safety. The FR did find MAs performed on Lockout/Tagout – Periodic Review and Implementation of Lock and Tag which could be considered related to “Electrical Safety.”

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

D. Romine, CPS&M
D. Norman, CPS&M
B. Wier, FFTF
H. Harville, FFTF
M. Stevens, BOS D&D

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Kerry Schierman

Surveillance Number: S-09-OOD-GPP-001

Date Completed: February 12, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

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

Title: Hazardous Energy Control – Electrical Safety Core Surveillance

Guide: Lines of Inquiry Established in Core Surveillance Guide 19.2

Surveillance Scope:

The objective of this surveillance is to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on AC and DC systems.

Surveillance Summary:

The Facility Representative (FR) reviewed work packages and observed the associated pre-job briefings and field work activities for:

- GW-09-00281/W - *HR-3 Repair Extraction Well H4-63 Manifold*;
- Construction Work Instruction #123653 for modifications to ZP-1 Pump and Treat, installation of power supply units in transfer building electrical panels;
- GW-09-00252, *Site, Groundwater Field Walkdowns*;
- GW-08-005284/M, *DR-5, Route Piping from T-D11 to T-D4*; and
- Minor Work Ticket (MWT) 09-059 to troubleshoot and repair heat trace at ZP-1 well PE-02.

The reviews focused on electrical hazard controls in work documents, document approval and release protocols, pre-job discussion content, and work practices. Areas of review for work practices included observation of establishment of safe worksite conditions,

hazardous energy isolation, verification of hazard removal, appropriate use of Personnel Protective Equipment (PPE), supervisor participation and oversight. Supervisor and worker qualification and knowledge were also evaluated.

The FR also reviewed a number of completed work packages to evaluate approvals, electrical safety controls, and/or release protocols. In addition to those identified in Finding F03 below, the following completed work packages were reviewed:

- GW-08-08148/W - KR-4, *Replace Feed Pump Motor PF-K02 and Mechanical Seal;*
- Minor Work Ticket (MWT) 09-005 - *Replace P-D11 Pump Head With Like-For-Like;*
- MWT 09-006 - *Repair NR-2 Process Test East Door Exit Light;* and
- MWT 09-017 - *Relamp AFDs in 100 Area Pump and Treats.*

Electrical Safety evaluated was found to be adequate. Pre-job briefings were considered adequate. Personnel, as guided by their Field Work Supervisor (FWS), referred to an “Electrical PPE Selection and Hazard Protection Guide/PPE Matrix for PPE Requirements” document to establish adequate protection/exclusion zones and implement appropriate PPE. Appropriate tooling was utilized. Safe condition and safe-to-work checks were adequately performed; in one instance a Good Practice was identified (see below) for repeated performance of safe-to-work checks following absence from the work site.

Work control documentation practices associated with the work packages reviewed and observed were not adequate. A concern has been documented to roll-up the issues identified (see below). Four of the findings and the observation documented below identify a number of issues that represent work control process weaknesses.

In total, one concern, five findings, one observation, and one good practice were documented:

- | | |
|-----------------------------|--|
| S-09-OOD-GPP-001-C01 | Work control documentation issues representing multiple process weaknesses were identified. |
| S-09-OOD-GPP-001-F01 | Five issues were identified with the methodology selected for troubleshoot and repair of the ZP-1 Well PE-02 heat trace circuit. |
| S-09-OOD-GPP-001-F02 | More steps of a work package were performed than authorized by a Partial Release. |
| S-09-OOD-GPP-001-F03 | The work release type had not been designated for several in-progress and completed work packages. |
| S-09-OOD-GPP-001-F04 | An unapproved work procedure was integrated into a work package. |

S-09-OOD-GPP-001-F05	Verification of work completion was not documented on a Tagout Authorization Form (TAF) prior to locks and tags being removed.
S-09-OOD-GPP-001-001	An active means of identifying a 24-volt power source was not established during the performance of work package GW-09-00281/W.
Good Practice	Craft personnel involved in the repair of extraction well H4-63 manifold performed a safe-to-work check prior to resuming work after leaving the work area for lunch.

Surveillance Results:

Concern: S-09-OOD-GPP-001-C01

Work control documentation issues representing multiple process weaknesses were identified. [OA #21646]

Discussion:

Although the surveillance activity was concentrated in the area of electrical safety, multiple documentation process weaknesses were identified in areas of work control. The concern is supported by Findings F01 through F04 and Observation O01, below.

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

Finding: S-09-OOD-GPP-001-F01

Five issues were identified with the methodology selected for troubleshoot and repair of the ZP-1 Well PE-02 heat trace circuit. [OA #21646]

Requirement:

48 CFR 970.5223-1(b)(5) and (6) state, "Before work is performed, the associated hazards are evaluated and an agreed upon set of ES&H standards and requirements are established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences. Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures."

HNF-PRO-12115, Section 5.3.1.1.3, states, "Compare work scope and known hazards to NPR Criteria listed in Appendix E, Table B...If work scope does not meet NPR criteria, use a Planned WD Style."

Discussion:

On February 9, ZP-1 Operations personnel identified the heat trace to well PE-02 (W299-W15-34) had malfunctioned and tripped its associated power breaker in ZP-1. A MWT was generated to identify the problem and if possible repair the circuit. The activity to troubleshoot the condition met the HNF-PRO-12115 Appendix E criteria for a MWT, but was identified as an E-01, Minor Electrical Repair, activity, rather than E-08, Minor Electrical Troubleshooting and Diagnostic Checks, activity. In this instance, until troubleshooting activities were conducted, the release authority could not reasonably determine whether repair requirements meet MWT criteria. (Issue 1)

On February 10, personnel installed Authorized Worker Locks (AWLs) on the "LPA Main" PE-02 Heat Trace breaker (#17) in ZP-1, as specified on the accompanying 8-Criteria Checklist. Initial troubleshooting consisted of lifting leads at the well head to determine the location of the fault. The fault was determined to be located somewhere between the well head and the ZP-1 Pump and Treat building, at the other end of an approximately 200 meter underground conduit wiring run. When the condition was identified, the leads were left determined, but wrapped. The MWT was not annotated that the leads had been lifted and left determined. HNF-PRO-12115, Appendix E, Table C, Descriptor E-08.e, states, "Lifting of leads to obtain readings is permitted provided the lifting and landing of the leads is tracked in the WO and the leads are landed within the same shift." (Issue 2) Although not the accepted method for identifying lifted leads, it should be noted the lifted leads, and also an out-of-service tag that was installed on breaker #17, were documented in the project's field walkdown work package (GW-09-00252).

Field personnel recognized the circuit could not be repaired easily, or with the MWT, so they returned to the Pump and Treat facility to determine an appropriate approach to facilitate expeditious restoration of heat trace capabilities. Personnel determined that since there was an electrical receptacle at the well head, the best short-term solution would be to power the heat trace from the electrical receptacle. The workers placed the leads in an electrically safe condition (with wire nuts), then removed their AWLs from the heat trace breaker. Personnel dispersed to prepare a work package to accomplish the task.

Several hours later the FR contacted an engineer to determine status. The FR was provided No Additional Planning Required (NPR) work document GW-09-00822, *ZP-1, Repair Heat Trace at Well #2*. The work package Resolution/Retest stated, "Perform minor electrical repairs, including component replacements with like for like material. Comply with DOE-0336 for energy isolation requirements and HNF-RD-11827 for electrical safety requirements. Due to cold weather, a temporary repair will be implemented by the following: 1) Install Lockout/Tagout as required on the receptacle

circuit. 2) Splice the conductor from the heat trace to the receptacle circuit. 3) Install a temporary 'out of service' tag on the heat trace circuit on LPA Main, breaker #17. 4) Test the operation of the heat trace thermostat and return to service." The FR questioned the selection of an NPR work document style, stating the work scope represented a temporary circuit modification rather than a minor electrical repair. HNF-PRO-12115, Appendix E, Table B - NPR Criteria 4, states in part, "No Modification work allowed." Although HNF-PRO-12115 and HNF-PRO-2001 do not discuss temporary modifications per se, the scope of the work being performed did not meet NPR criteria. (Issue 3)

The engineer stated the NPR selection had been made to expedite the repair, and was considered an appropriate mechanism because the condition was considered an emergency, since cold weather was expected that night. He further justified the selection by pointing out a statement in the work document "Symptom, Problem, or Condition" section, which stated in part, "The permanent repair will be done on Work Package GW-09-00827/W," a planned package. HNF-PRO-12115, Section 5.2.1.2, states, "If an identified condition is unsafe, unstable, and/or may be an emergency, notify the building administrator/facility manager to stabilize in accordance with Alarm Response Procedures, Building Emergency Plans, and/or Facility Response Plans developed per HNF-RD-7647, Emergency Preparedness Program Requirements. See Appendix B for a definition of emergency." The Appendix B definition for Emergency states, "Work tasks for which the building/facility owner requires immediate assistance due to the critical nature of the repair (example: stopping flooding or fire). Only initial stabilization of the emergency condition is allowed prior to processing a WD. In some cases, the critical issue may be mitigated by activating alternate mechanisms to accomplish the critical function rather than initiate a repair. When the alternate mechanism is in place, the work activity can usually proceed by processing a WD. The priority of such a WD would be applied in accordance with the guidance in Appendix C." The condition at hand was not an emergency per the HNF-PRO-12115 definition. At the time the decision was made to perform the circuit modification with an NPR work document the heat trace out-of-service condition had been present for 24-hours, did not represent a personnel safety hazard, and most likely did not represent an equipment damage hazard as long as the well pump was still activated. (Issue 4)

Upon completion of the circuit modification the circuit was reenergized, retested, and the work package identified as complete. Although a permanent repair package was designated, and the out-of-service tag installed, no drawing, document, or tags identified the configuration of the circuit. The condition therefore represented a potential safety hazard. The FR recognizes SGRP protocol would implement a circuit verification prior to conducting a tagout activity or performing any work on a circuit, but that process is discretionary, and therefore cannot be considered a configuration management documentation mechanism. (Issue 5)

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

Finding: S-09-OOD-GPP-001-F02

More steps of a work package were performed than authorized by a Partial Release. [OA #21457]

Requirement:

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...c. Perform only 'released' tasks or 'no release required' tasks specified in the work package."

Discussion:

On January 28, work package GW-09-00281/W was partially released, authorizing steps 1.0 through 6.4 and 6.10 to be performed.

On January 29, maintenance personnel performed work steps 6.5 through 6.8, without obtaining an additional release. The condition was identified as the Maintenance Lead, FWS, and FR were reviewing the package to resolve another identified issue after work completion.

Because the hazardous energy control established for steps 6.2 through 6.4 was adequate for steps 6.5 through 6.8, a personnel hazard had not been present at the time the work was being performed.

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

Finding: S-09-OOD-GPP-001-F03

The work release type had not been designated for several in-progress and completed work packages. [OA #21589]

Requirement:

HNF-PRO-12115, *Work Management*, Section 5.2.5.3, states, "Determine if the work release will be a Full or Partial release and identify it in the work package."

Discussion:

In reviewing work package GW-09-00252, *Site, Groundwater Field Walkdowns*, in use at KW, the FR noted that although the work package had been approved for work release, the release type had not been designated. The FR identified the discrepancy to the FWS, who got the Release Authority to designate the release type (Full).

Discussions with the FWS indicated it had been made clear to him via discussions with the Release Authority that full release was intended.

The same discrepancy was identified during oversight of work package GW-09-00281/W, HR-3, Repair Extraction Well H4-63 Manifold, on January 29 (see OA Report #21457), when that package was partially released. In that instance, although the work release type (Partial) was not designated with the work release approval, there was a Partial Release form completed and approved in the package.

The FR elected to perform a partial extent of conditions review to quantify the frequency of occurrence of this issue. The following 20 completed work packages were reviewed for identification of release type:

- GW-07-00075
- GW-08-01121
- GW-08-01662
- GW-08-02083
- GW-08-02086
- GW-08-02157
- GW-08-02161
- GW-08-02162
- GW-08-02173
- GW-08-02179
- GW-08-02328
- GW-08-02355
- GW-08-02360
- GW-08-02389
- GW-08-03431
- GW-08-05480
- GW-08-06468
- GW-08-06641
- GW-08-06654
- GW-08-07181

Of the 20 work packages reviewed, the release type was not designated on 4 (GW-08-02328, GW-08-02360, GW-08-02389, GW-08-06468) of them, an incidence rate of 20%. It is recognized that many of the packages were completed by the previous contractor, however, the frequency indicates the issue identified on January 29 is not an isolated event.

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

Finding: S-09-OOD-GPP-001-F04

An unapproved work procedure was integrated into a work package. [OA #21381]

Requirement:

HNF-PRO-12115, *Work Management*, Section 5.2.5, Perform Work, Step 2, second bulleted paragraph for the Releasing Authority, states, "Verify that any pre-approved

procedures within the work package are the latest revision and if the revision date was after the pre-work review date, evaluate whether the procedures changes affect facility configuration, hazard boundary, lock and tag or other technical or administrative areas that would affect release of this work package.”

HNF-PRO-12115, *Work Management*, Section 5.3.3.4.2, second bulleted paragraph for the Technical Authority, states, “Obtain current revisions of any support documents.”

Discussion:

Work package GW-08-08148/W, *KR-4, Replace Feed Pump Motor PF-K02 and Mechanical Seal* (released for work on January 13, 2009), step 6.16, stated “Lubricate new motor as needed and record in the PM Data Sheet 1 - Lubricate Motors at KR-4 (refer to section 5.6 of GW-PM-805, *Lubricate Motors at Groundwater Facilities*, attached).” The attached copy of GW-PM-805 was a draft copy of Revision 8, Change B. The approved-for-use version of GW-PM-805 was Revision 8, Change A. Review indicated that section 5.6 of GW-PM-805 was not affected by Change B, and lubrication of the pump was not considered necessary.

Having a different version of a reference document than the currently approved one in a work package was a repeat of a previously identified issue (see FR surveillance finding S-08-OOD-GPP-003-F02). Corrective actions for S-08-OOD-GPP-003-F02 were performed on January 21, 2009, and addressed this incident also. Therefore, the FR considers this finding closed.

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

Finding: S-09-OOD-GPP-001-F05

Verification of work completion was not documented on a Tagout Authorization Form (TAF) prior to locks and tags being removed. [OA #21457]

Requirement:

DOE-0336, *Hanford Site Lockout/Tagout*, Section 5.5 states,

“...2. Approve removal of tag(s) as follows:

- Sign and date in TAF Block #12 that the tag(s) in Block #7 are no longer applicable.
 - Sign and date removal approval in TAF Block #28.
 - Identify Restoration Position /Condition in TAF Block # 29.
 - Refer to special instructions in TAF Block #14 for removal instructions, if applicable.
3. Ensure that affected personnel are safely positioned or removed from the area prior to re-energizing equipment.
 4. Remove lock and tag in accordance with TAF.
NOTE: Refer to Block #14 for any special instructions.
 5. Restore component position as specified in TAF Blocks #29.

6. Sign and date TAF Block #30 for each tag removed.
7. Return TAF and tag(s) to the COA or as directed.”

Discussion:

Following the completion of electrical disconnect and safe-off on January 28, Operations personnel desired to restore power to a portion of the facility, which required partial clearance of the TAF. A new TAF line item was appropriately approved for the alternate (reduced) Lockout/Tagout, and then the tag they desired cleared was authorized for removal in TAF Block #28. DOE-0336, Steps 5.5.3 through 5.5.7 were completed to restore the system as desired. However, TAF Block #12 was never signed verifying the work requiring the tags had been completed. The FR identified the discrepancy on January 29, and notified the Operations FWS. Presuming the FWS had verified work complete prior to authorizing tag removal; the condition did not represent a safety hazard.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-GPP-001-O01

An active means of identifying a 24-volt power source was not established during the performance of work package GW-09-00281/W. [OA #21457]

Discussion:

On January 28, the Controlling Organization established a lockout/tagout to electrically disconnect and safe-off equipment to support the repair of extraction well H4-63 manifold in accordance with GW-09-00281/W. The hazardous energy control included three tags, one of which secured 24-volt control power to the well's high pressure switch. When the electrical disconnect/safe-off was completed, the Controlling Organization performed a lockout/tagout partial clearance to allow them to restore 24-volt control power in order to restore facility operation, since it also provided control power to the other 100-HR-3 wells.

The work package had not been written to identify that a 24-volt power source would be present when the step to reconnect wiring to the high pressure switch was approached, nor was that the original intention. The condition presented itself when plans changed, and personnel elected to reenergize the 24-volt power source after the electrical disconnect/safe-off. Rather than change the package or use partial releases to identify the condition, personnel relied upon the FWS and craft personnel's knowledge of the circuit condition to ensure control power would be secured prior to performing reconnection.

Note: Because the voltage source was less than 50 volts, isolation for personnel safety was not mandatory per DOE-0336, Appendix C, but best practice would be to deenergize if possible or at least document a warning to personnel if voltage would be present.

RL Lead Assessor Closure Required: YES NO

Good Practice:

Craft personnel involved in the repair of extraction well H4-63 manifold performed a safe-to-work check prior to resuming work after leaving the work area for lunch. [OA #21457]

Discussion:

On the morning of January 29, craft personnel performed safe-to-work checks prior to commencing work per work package GW-09-00281/W to repair extraction well H4-63 manifold. The work location was remote from the 100-HR-3 facility in the 100-H area. When personnel could not complete their work prior to their lunch break, they left 100-H to take their lunch, returning after lunch to recommence work. Since they had been away from the work site during lunch, prior to resuming work the personnel reperformed safe-to-work checks for the equipment they were going to be working on.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

No specific electrical safety oversight activities had been documented in the previous 18 months. However, facility safety walk-throughs (guided by checklists) did contain electrical safety evaluations and the project maintained a lockout and tagout mentor program that evaluated hazardous energy control practices.

When topical oversight information was requested from Integrated Evaluation Planning personnel, a management assessment (ESHQ-OSH-08-MA-07, Rev 1) documenting the annual hazardous energy control program review was provided. Although assessment personnel were able to provide the FR with field notes identifying activities conducted at SGRP, and also identifying deficient conditions, the report did not contain such information. Discrepancies identified with the assessment report were documented in surveillance report S-09-00D-CHPRC-002.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

T. J. Ford, CHPRC
S. L. Kooiker, CHPRC
D. M. Turner, CHPRC

Also, provided to the following via email:
R. B. Barmettlor, CHPRC
A. J. Rossi, Jr., CHPRC
B. H. Von Bargaen, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Dennis Humphreys, Cliff Ashley

Surveillance Number: S-09-OOD-SNF-001

Date Completed: February 18, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: SNF, 100K Project

Title: Hazardous Energy Control – Electrical Safety Core Surveillance

Guide: Lines of Inquiry Established in Core Surveillance Guide OSS 19.2, Dated January 6, 2009.

Surveillance Scope:

The objective of this surveillance is to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on AC and DC systems.

Surveillance Summary:

The Facility Representative (FR) conducted an Electrical Core Surveillance between January 12, 2009, and February 18, 2009. The surveillance was conducted per Core Surveillance Guide OSS 19.2, Electrical Safety. The surveillance involved three activities:

1. Review of work packages.
2. Observation of Electrical Work in the Field.
3. Interviews of key personnel that perform, release, or supervise Electrical Work.

The following work packages were reviewed:

- 1K-08-07979, Annual Inspection of Transfer Bay Crane, SP-14-007 and 011

- 1K-08-06852, D4, 100 K Mobile Office Demolitions (101, 102, 214, 401, 402, 907 and 928);
- 1K-08-5372, Service Water Pump #1 Motor Remove and Replace (completed package);
- 1K-09-00078, 105KW Quarterly Skimmer Pump Inspection and Vibration Readings, SP-07-011;
- 1K-09-00080, 165KE Quarterly Inspection of 125VDC Battery, SP-19-002; and
- 1K-09-00726, Basin Exhaust Fan Inspection, SP-30-005.

Work Activity Observation;

1K-08-06852, Task 2, Verify Effectiveness of Disconnecting/Air Gapping of the Power to the Applicable Trailers.

Personnel Interviewed:

Maintenance Electricians (3)
Maintenance Field Work Supervisors (3)
Shift Operations Manager
Operations Field Work Supervisors (2)

Based on the documents reviewed, the activity observed, and the interviews conducted, at the project level, there were no major issues noted relative to Electrical Safety. The 100K Project has a strong electrical safety "program," and personnel are knowledgeable of the requirements and hazards involved with electrical work and/or testing. Two good practices and two observations were generated.

Surveillance Results:

Observation: S-09-OOD-SNF-O01

Lockout/Tagout instructions associated with the work packages reviewed were non-consistent in detail provided.

Discussion:

All of the work packages reviewed contained lockout/tagout instructions. However, the level of detail provided varied greatly and in some cases varied within the specific work instructions. HNF-GD-12112 provides the following "If a lockout/tagout will be used, the planning team should capture all the hazards that require a tagout boundary (high pressure, electrical energy, chemicals, etc.) as well as any suggestions they have for the tagout boundary locations (valves, breakers, etc.) and the elements or activities that should be included in a Safe Condition Check. The team should discuss whether the lockout/tagout can be implemented before any work begins, or if it must be sequenced in any way with work steps after the package has been released." The above should apply

to the lockout associated to work package instructions such as 1K-08-05372 and 06852. Work Package 1K-08-06852 provided consistently detailed lockout instructions per the HNF-GS-12112. 1K-08-05372 did provide detailed instructions for the initial work package lockout/tagout which included both electrical and system components. However, when the rotation check section required lockout/tagout the step read as follows "Install LOTO per DOE-336." In this case suggested isolation points were not provided. It would not be expected to install both the mechanical/system and electrical locks and tags but these words do not provide any direction relative to that.

The other work packages listed are surveillance packages that don't have instructions generated per HNF-PRO-12115. The "work instructions" in this case refer to a procedure that is built to HNF-PRO-589 and MS-9-0001, which are silent on lockout/tagout. The lockout/tagout instructions in the applicable surveillance procedures vary in detail from the following:

- "Lock and Tag implementation and/or use of Authorized Worker Locks (AWL) shall be in accordance with DOE-0336, *Hanford Site Lockout/Tagout*." (SP-14-007 and SP-14-011)
- "Lock and Tag administrator may approve use of AWLs (suggested lock and tag location Hazard is rotating equipment. 105KW (MC-P-6 'Local disconnect switch')." (SP-07-011)

HNF-GD-12115 allows the use of existing pre-approved instructions contained within technical procedures and/or Computerized Maintenance Management System datasheets to essentially be the work instructions. Keeping that in mind an opportunity exists to apply the same approach when developing technical procedures being used as work instructions in Preventative Maintenance work packages.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-SNF-002

Project personnel did not realize that the 2009 version of NFPA 70E was implemented as of February 1, 2009.

Discussion:

On January 26, 2009, letter CHPRC-0900027 was issued to RL regarding the implementation of the 2008 edition of NFPA 70 and the 2009 edition of NFPA 70E. The letter set an implementation date of February 1, 2009, for all new work. The FR asked several key personnel including the Electrical Subject Matter Expert (SME), two planners, the Maintenance Manager, and an Electrical Field Work Supervisor if they were aware of the NFPA 70E implementation. The unanimous response was no, they were not aware. In fact a review of work packages generated post February 1, indicate that the

electrical safety controls were not based on NFPA 70E. This was based on a review of the associated Automated Job Hazard Analysis. Examples of changes to NFPA 70E that were not captured were new requirements for hearing protection for arch flash for hazard/risk category 0 and 1 work (not required in NFPA 70E 2004 Edition) and new requirements for arch flash rated face shields for Hazard/Rick category 1 (not required in the 2004 edition). The lack of knowledge of implementation is across the CHPRC workforce; a CHPRC level issue will be captured regarding the pre-mature or inadequate implementation of the 2009 Edition.

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

Good Practices:

Energized Work Permits planned for and utilized for Work Packages 1K-08-5371 and 5372 involving repair and/or replacement of Service Water Pump motors. The electrical safe condition check involved the removal of the terminal box cover and the removal of insulating tape to allow meter access for testing the circuit de-energized, less than 50 volts AC. During the planning phase for both packages personnel recognized that the removal of the insulating tape to allow the performance of the safe condition check had to be treated as working on energized equipment. The work instructions were written to ensure an energized work permit was required prior to the removal of the insulating tape since this was not within the bounds of energized testing due to the hands on aspect of tape removal.

Balance of Site Procedure, BOS-PRO-001, was utilized in preparation of Work Package 1K-08-06852, involving the demolition of various mobile offices. Task 2 of the work instructions performed the steps to establish a Cold and Dark Electrical condition for the mobile office demolition. The Project adopted the tenants of the Cold and Dark Procedure, BOS-PRO-001, even though it is not a 100K Project or CHPRC PRO. The RL Electrical SME conducted a walkthrough of D-4 Mobile Office DEMO work package at K Basins, and verified that the work package (J-4) procedure (1K-08-06852) that covered Electrical Cold & Dark Work Activities was adequately followed, and consistent with Balance of Site procedure (BOS-PRO-0001 Rev. 0) entitled Electrical and Mechanical Isolation of Facilities to Support Site Deactivation & Decommissioning Work.

Contractor Self-Assessment:

The FR was provided copies of two self-assessments conducted last year relating to electrical safety:

1. 100K-OPS-09-MA-06, Lockout/tagout Performance – 11/21 – 12/31 2008.
2. 100K-OPS-09-MA-28, Effectiveness Review of Corrective Actions from Drop Light Power Cord Event – 11/21 – 12/31, 2008.

100K-OPS-09-MA-06 generated two Opportunities for Improvements (OFI's) and associated Issue Identification Forms (IDF).

100K-OPS-09-MA-28 generated one OFI and associated IDF.

Neither MA resulted in any findings.

100K-OPS-09-MA-28 was a result of an action associated with a previous 2007 drop light cord event. The lockout/tagout MA was a self-assessment performed as a proactive response to an "R" occurrence report for the Waste Treatment Plant series of hazardous energy control events. Both assessments provided were actions/responses to specific event/events and not planned periodic self assessments of Electrical Safety. No other self-assessments related to electrical safety were identified.

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

Management Debriefed:

Darrell Riffe, ESH&Q Manager
Mark Wright, Work Control/Maintenance Manager
Terry Hissong, Operations Manager
Jim Meeker, Operations Specialist

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: Sandy Trine, Ed MacAlister, Sharee Dickinson

Surveillance Number: S-09-OOD-PFP-002

Date Completed: February 27, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Electrical Safety – Electrical Safety Core Surveillance

Guide: Lines of Inquiry Established in Core Surveillance Guide OSS 19.2

Surveillance Scope:

The objective of this surveillance is to verify that contractor personnel are using safe work practices in completing electrical maintenance and modification work on AC and DC systems.

Surveillance Summary:

The Facility Representatives (FRs) reviewed work packages and observed the associated pre-job briefings and field work activities for:

- 2Z-08-0043 Spare Battery Testing;
- 2Z-08-6979 Criticality Alarm System (CAS) Battery Inspection;
- 2Z-08-1158 Troubleshoot/Repair/Replace Electrical Equipment;
- 2Z-07-5525 Isolate & Disconnect Rm 306A Heat Detectors;
- 2Z-08-0887 Repair of Steam Fan Heating Systems; and
- Hazardous Energy Control (HEC) Activities for Evaporative Cooler.

The reviews focused on electrical hazard controls in work documents, document approval and release protocols, pre-job discussion content, and work practices. Areas of review for work practices included observation of establishment of safe worksite conditions,

hazardous energy isolation, verification of hazard removal, appropriate use of Personnel Protective Equipment (PPE), supervisor participation and oversight. Supervisor and worker qualification and knowledge were also evaluated.

The FRs also investigated implementation of the recently adopted National Fire Protection Association (NFPA) 70E, 2009 Standard for Electrical Safety in the Workplace and reviewed self assessment of electrical safety. Electrical Safety as evaluated was found to be adequate. No HEC issues were identified. Five observations were identified during the field work activities and review of work packages. The observations were related to implementation of PPE controls, implementation of revised electrical work safety standards, work control, recording of data and ladder use.

- | | |
|-----------------------------|---|
| S-09-OOD-PFP-002-001 | During the review of criticality alarm system battery maintenance work packages, inconsistent and/or inaccurate information about hazards, controls and work processes was noted. |
| S-09-OOD-PFP-002-002 | Communication about implementation of the revised NFPA 70E, 2009 Standard for Electrical Safety in the Workplace was an opportunity for improvement. |
| S-09-OOD-PFP-002-003 | Opportunities to improve development and use of an electrical equipment work package were identified. |
| S-09-OOD-PFP-002-004 | Data recorded in table field does not match table column headings |
| S-09-OOD-PFP-002-005 | Ladder was less stable than expected when worker ascended and descended on it. |

Surveillance Results:

Observation: S-09-OOD-PFP-002-001

During the review of criticality alarm system battery maintenance work packages, inconsistent and/or inaccurate information about hazards, controls and work processes was noted. (IS-CHEM, MAINT-PLNG & ISMS-ANLYZE) (OA-21862)

Discussion:

The packages reviewed were 2Z-08-0043 Spare Battery Testing and 2Z-08-6979 CAS Battery Testing. The opportunities for improvement are listed below.

- Work instructions for both packages discuss addition of water to battery not electrolyte, yet handling electrolyte was discussed in the controls and comments section of the Automated Job Hazard Analysis (AJHA). Consequently, the FR concluded that the work package was inconsistent about what was being added to the battery.

- In the Precautions for Safe Handling section Material Safety Data Sheet (MSDS) 028027 stated, that water should not be added to acid. The procedures for CAS battery maintenance describe adding water to the battery and thus appear to be inconsistent with the caution in the MSDS.
- AJHA 2Z-4698 requires purple nitrile gloves when handling battery and handling/pouring electrolyte and other chemicals. In the Precautions for Safe Handling section of the MSDS for electrolyte (028027) acid-proof gauntlet gloves are identified as appropriate for handling containers. The FR read information on the back of a package of purple nitrile gloves in room 501 of 291-Z. The information indicated that thickness of gloves was not quality controlled, consequently use for heavy duty applications was not recommended. Consequently the FR judged that the determination that purple nitrile gloves were “acid-proof gauntlet gloves” and the information on the package of purple nitrile gloves appeared to be inconsistent.
- There were no time limits identified for handling of the battery electrolyte. Thinking that the time for potential exposure to the electrolyte was limited may have been the basis for concluding that purple nitrile gloves were adequate, but short exposure times were not discussed in the procedure or the AJHA. If short exposure times were assumed in the analysis that supported use of purple nitrile gloves, including the assumption in the procedures and the AJHA was an opportunity for improvement.
- Procedure for battery capacity testing, 2Z-22169 identifies acid resistant gloves as special equipment and tools (section 3.1). The applicable AJHA specifically calls for use of purple nitrile gloves for handling the battery and handling /pouring battery electrolyte. Using consistent terminology when describing PPE was considered an opportunity for improvement.
- Previously the FR has often noted MSDSs in work packages. The MSDS for electrolyte was not in either of the CAS battery work packages. While there are several areas at PFP to access MSDSs, the FR judged that not including the MSDSs in the applicable work packages was an opportunity for improvement.
- The FR reviewed three other PFP battery maintenance procedures. The procedures reviewed are listed below.
 - 2Z22163 Switchgear Control Battery Maintenance
 - 2Z22011 Seismic UPS/Battery Checks
 - 2Z22138 Cybrex 2T-12.5/1BV1M UPS 2736-ZB

These procedures did not require addition of electrolyte to the batteries, yet the hand protection called out by the applicable AJHA (2Z-4491), Nitro-Solv or equivalent gloves, appeared to be a more heavy-duty glove. The FR noted the chemical products identified in the hazard section of the MSDS were similar to those identified in AJHA 2Z-4698. The differences were that battery electrolyte was not identified in AJHA-4491 and NO-OX-ID grease “A” MSDS 63816 was. The FR reviewed MSDS 63816. Rubber gloves were the hand protection suggested in the MSDS. The FR concluded that consistent identification for hand protection PPE for the battery maintenance procedures was an opportunity for improvement.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-PFP-002-O02

Communication about implementation of the revised NFPA 70E, 2009 Standard for Electrical Safety in the Workplace was an opportunity for improvement. (IS-ELECT, CONOPS-COM & ISMS-WORK) (OA-21835)

Discussion:

The electrical Person in Charge (PIC), a Planner, the Planning Manager, and the Decommissioning Manager were unaware of the February 1, 2009, implementation of the revised NFPA standard. Communication about the implementation of this new standard could be improved. One possible contributing factor was the use of the work adopt in the letter. The January 26, 2009, letter states, "CHPRC plans to adopt the editions of the subject standards effective February 1, 2009, with all new work included in the CHPRC contract." At least one or two of the CHPRC personnel contacted by the FR believed that the intent of the quoted wording may have been to state that implementation would be initiated by February 1, 2009, rather than being completed.

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

Observation: S-09-OOD-PFP-002-O03

Opportunities to improve development and use of an electrical equipment work package were identified. (CONOPS-PROCS, MAINT-PLNG & ISMS-WORK) (OA-21872)

Discussion:

The work package reviewed was 2Z-08-1158 Troubleshoot/Repair/Replace Electrical Equipment. The opportunities for improvement noted are summarized below.

- There was no work record entry for tasks 130 and 131. These were tasks partially released and worked one to five days before the FR's review. The supervisor acknowledged that he had not yet made entries into the work record for tasks 130 and 131. He stated that he planned to make the work record entries very soon. Timely completion of work record entries was considered an opportunity for improvement.
- There was no work entry for task 126. According to the partial release record, the task had been released, the field work had been completed and the work had been accepted by operations. Task 126 was described as PAX voltage levels. The supervisor told the FR that the task was not worked. The supervisor initiated a work record entry for the task while the FR was discussing it with him. The FR acknowledges that nearly all work record entries reviewed were completed at the time of the review. Completion of work record entries at the time the task was worked was considered an opportunity for improvement with a limited scope.
- Step 6.8 of the work instruction requires that the task work record entry include information about completion of housekeeping. Many of the entries reviewed did not

mention housekeeping. The FR recognized that not all of the activities identified as being in the scope of this work package require housekeeping. Requiring a housekeeping entry for each task may have been setting up the PIC for failure. Enforcing the requirement or removing it was considered an opportunity for improvement.

- Step 6.4 of the work instruction required that the Rad Con Duty Manager ensure that work in radiological areas was low risk work. The Rad Con Duty Manager was required to document this determination in the work record. More than one of the tasks reviewed by the FR included work in radiological areas. Only one work risk determination was observed in the work record entries reviewed. Consequently, completion of radiological control work record entries were identified as an opportunity for improvement.

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

Observation: S-09-OOD-PFP-002-O04

Data recorded in table field does not match table column headings. (CONOPS-PROCS, MAINT-ACT & ISMS-WORK) (OA-21659)

Discussion:

Table 6.1.2 on page 3 of work document 2Z-07-5525 identifies time, date, and initial columns for components to be placed in bypass and after they are restored. For each component identified, there are three column headings titled "Time," "Date," and "Initial." Based on these column headings, the expectation is that each component is placed in bypass; the responsible person would document the time, date, and their initials in that column. The FR discussed the table development with the planner who developed this work package and the planner stated, that the table was developed to allow Front Line Manager's (FLM) flexibility to perform numerous bypass/restore operations, and that the intent was for FLM to fill out applicable sections of table with time/date/initial in each box. However, when this work package was initially conducted on October 23, 2008, the data fields in each column were individually filled out such that the time is in one column, the initials in another, and the date in the last. The way the data was recorded is inconsistent with the column headings.

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

Observation: S-09-OOD-PFP-002-O05

Ladder was less stable than expected when worker ascended and descended on it. (MAINT-HAZID, CONOPS-L&T & ISMS-ANLYZE) (OA-21471)

Discussion:

While observing the application of Controlling Organization Lockout/Tagouts (LOTOs) for work on supply fan five, the FR noted that the rolling eight foot step ladder used for installation of one LOTO moved on the opposite side when the worker/installer was ascending and descending. After discussions with the industrial safety Subject Matter Expert and the ladder inspector, the FR concluded that the ladder could be used safely, but suggested it would be a good practice to consider the following and communicate conclusions to ladder users.

- Location of the ladder holder; it may be better for the worker holding the ladder to put weight on the other side of the ladder (ladder is designed for two workers to use it simultaneously). Furthermore, there may be benefit to having two workers assisting to insure stability of the ladder.
- Location of the ladder user; the demonstration and review of manufacturer information led to the conclusion that the ladder was designed for use at the platform level. It was used at this level for valve closure, but in the past, ladder training did not discuss use of a double rung ladder designed to be used at the level of an installed platform. Consequently, workers might use the ladder to accomplish work at a level below the platform and the ladder might unexpectedly be less stable during use.
- Information about stabilizer locking if it is not commonly known that some ladders only lock after worker is at a certain height on the ladder.

Following receipt of Operational Awareness report 21471, the subject ladder was taken out of service. An evaluation of the need for the other ladders in the room with the supply fans (room 321) was completed by industrial safety, maintenance and operations. The FR judged the contractor response to this opportunity for improvement to be acceptable. No additional actions are requested. Observation five was included in this report because it was noted during performance of HEC surveillance.

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

Contractor Self-Assessment:

The FRs requested Electrical Safety self-assessment information for Fiscal Years (FY) 2007, 2008, and 2009 (to date) and any additional self-assessments planned for the remainder of FY 2009 from the Quality Assurance/Quality Control project personnel. At first request, one self-assessment (PFP-S&H-07-MA-007) specific to Electrical Safety was identified for late Calendar Year 2006 specific to PFP as shown in the Integrated Evaluation Plan (IEP) database. PFP Operations personnel were able to provide HEC Periodic Review Forms as performed in February 2008, associated Issue Identification Form (IIF), Corrective Action closure evidence, and a sampling of monthly Lock and Tag Surveillance checklists from August 2008 through January 2009. After further review by the FR, she was able to identify the following seven (7) additional Self-Assessments in



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

JUN 09 2009

09-OOD-0052

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 – SURVEILLANCE REPORTS, DOCUMENTED SAFETY ANALYSIS (DSA) AND TECHNICAL SAFETY REQUIREMENTS (TSR) IMPLEMENTATION REVIEW

During March 2009, RL performed five surveillances at various CHPRC projects/facilities to evaluate DSA and TSR implementation. The surveillance reports identified two Findings, twelve Observations, and one Good Practice. The Findings and Observations identified were considered minor in nature and severity. The surveillance reports are attached.

CHPRC is directed to process the attached surveillance reports through the CHPRC established corrective action management system. RL retains closure authority for the Findings and one Observation (S-09-OOD-SWOC-002-002), as identified in the attached surveillance reports.

The Government considers this action 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.

Mr. J. G. Lehew III
09-OOD-0052

-2-

JUN 09 2009

If you have any questions, please contact me, or your staff may contact Ray J. Corey, Assistant Manager for Safety and Engineering, on (509) 376-0108.

Sincerely,


Sally A. Sieracki
Contracting Officer

OOD:KMS

Attachments

1. S-09-OOD-BOS D&D-002
2. S-09-OOD-LWFS-003
3. S-09-OOD-PFP-003
4. S-09-OOD-SNF-002
5. S-09-OOD-SWOC-002

cc w/attachs:

M. V. Bang, CHPRC
L. T. Blackford, CHPRC
D. B. Cartmell, CHPRC
S. T. Dahlgren, CHPRC
D. C. Del Vecchio, CHPRC
D. L. Foss, CHPRC
G. M. Grant, CHPRC
S. M. Kelley, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC

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

Division: Operations Oversight Division (OOD)

Surveillant: Ron Johnson

Surveillance Number: S-09-OOD-BOS D&D-002

Date Completed: March 30, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Central Plateau Surveillance & Maintenance (CPS&M), Balance of Site (BOS) Deactivation & Decommissioning (D&D)

Title: Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) Implementation Review

Guide: Lines of Inquiry Established in Core Surveillance Guide NSS 18.51

Surveillance Scope:

The scope of this surveillance is to verify that the contractor is adequately implementing DSAs and TSRs at facilities and work activities.

Surveillance Summary:

CPS&M group currently has seven facilities that are required to have a DSA. Fast Flux Test Facility is currently undergoing transition to the CPS&M group and will not be included in this review. The TSR procedures for all seven nuclear facilities are written in similar fashion (i.e., no safety limits, limiting conditions for operations, nor surveillance requirements). The Administration Control section is also written similar for all facilities. The DSA/TSRs for U-Plant and 224-T were selected to ensure compliance with this surveillance.

The Facility Representative (FR) performed the following activities in order to evaluate CPS&M Programs:

Work activities:

1. Toured U-Plant canyon (2/17/09); and
2. Observed work at U-Plant (3/24/09).

Reviewed the following procedures:

1. HNF-13829, *U Plant Documented Safety Analysis*;
2. CP-14641, *Documented Safety Analysis for the 224-T Facility, Rev.2*;
3. HNF-PRO-35942, *Safety Management Program Assessment Process*;
4. HNF-22632, *Process Description for Safety Management Program Implementation Verification*;
5. CP-08-07388/W, *U-Plant Canyon Crane Cab HEPA Filter Testing*;
6. CP-08-07386/W, *U-Plant Canyon Crane Electrical*;
7. CP-08-07378/W, *U-Plant Canyon Crane Movement and Re-lamping*;
8. CP-09-020, RWP, 221-U, *Canyon Crane Maintenance and Crane Cab*;
9. CP-09-022, RWP, 221-U, *Canyon Crane Maintenance and Deck*;
10. CP-09-023, RWP, 221-U, *Canyon Deck Level*;
11. 2CP-SUR-U-04006, *U-Plant Facility Surveillance*; and
12. 2CP-SUR-T-04014, *224-T Annual Surveillance*.

Interviewed the following personnel:

1. Nuclear Safety Engineer;
2. Shift Supervisor;
3. Work Control Lead; and
4. Radcon Supervisor.

For Activity 1 – verify implementation of selected DSA elements, two elements out of the DSA for U-Plant and 224-T facilities were selected. The first element selected related to the passive features that mitigate abnormal events and emergencies at both facilities. The second element selected included the Safety Management Program (SMP) with the topical area of Radiation Protection.

224-T building structure is mentioned as a passive design feature in the DSA for confinement of radio nuclides but under the accident analysis section the building structure is assumed to fail. U-Plant describes the canyon structure, ventilation, sand filter, and exhaust stack as passive design features. Again, for accident analysis in the DSA the passive design features are assumed to fail for a worst case accident scenario which is a seismic event.

A walk down of the building structures for both 224-T and U-Plant and a review of Unreviewed Safety Question records (FY 2008 and FY 2009) for potential modifications showed no changes were made to the passive features as listed in the DSAs.

The FR reviewed two completed work documents that were selected based on the work activity at either U-Plant or 224-T facility. Both work packages referenced Radiological work Permit (RWP) action limits and respiratory controls, monitoring for airborne activity in the Precaution and Limitation sections. During a walk down at U-Plant the

establishment of a Radiological Buffer Area (RBA) was not maintained for increased work activity that included entry into and out of a Contamination Area (Observation-1).

FR reviewed three RWPs used for work at U-Plant. Dose monitoring is specified and is consistent with 10 CFR 835. A review of ALARA Management Worksheets and Radiological Risk Screening forms associated with work packages CP-08-07386 and CP-08-07378 was performed, and it was noted that work was marked as medium risk due to contamination level and airborne limits. A review of training records for a representative sample of U-Plant work personnel showed everyone was current with radiological and respiratory training. This would satisfy the specific lines of inquiry for Radiation Protection under the SMP for TSR HNF-13829.

For Activity 2 – verify implementation of selected TSR elements; implementation of the Limiting Control of Operation is not applicable for either U-Plant or 224-T TSRs. The Administration Control section of the TSR for U-Plant was reviewed for proper implementation of D.5.2, Waste Inventory Control. The annual surveillance 2CP-SUR-U-04006 lists TSR D.5.2 but does not clearly state the Administration Control (i.e., applicability or the requirement) as written in the TSR (Observation-2).

The 224-T TSR does not have a step in the TSR Administration Control section that requires Waste Inventory Control and a review of the annual surveillance 2CP-SUR-T-04014 confirmed no TSR requirements listed.

Procedure FSP-3647, Section OP-9 is written to supplement the TSRs in providing amplifying instructions that could be used by the Operator. The details for staged waste at U-plant discuss TRU waste packaging, nominal separation, and restrictions on vehicles and or combustible or flammable fuels are all discussed in OP-9.

During a work activity at U-Plant 90 day storage pad a low level waste drum was inadvertently opened up to retrieve a waste package (Observation-3).

In summary, this FR considers the DSA/TSR implementation for CPS&M to be satisfactory and the activities appeared to meet requirements with only a few minor exceptions.

Three observations were generated:

- **S-09-OOD-BOS D&D-002-001** – RBA not established.
 - **S-09-OOD-BOS D&D-002-002** – TSR requirements are paraphrased in Implementing Procedures.
 - **S-09-OOD-BOS D&D-002-003** - Wrong Low Level Waste Drum Opened at U-Plant.
-

Surveillance Results:

Observation: S-09-OOD-BOS D&D-002-001

RBA not established. (OA 21750)

Discussion:

During a walk down tour of U-Plant Operating Gallery no RBA was observed established between the Contamination and Clean areas even though work in contamination areas was occurring on a daily basis. A follow-up discussion with Radiological Control management determined the area (RBA) was down posted following the day's work to support U-Plant canyon crane reactivation. The FR mentioned to the contractor that with the daily work activity at U-Plant an RBA appeared required due to the Contamination areas are no longer considered inactive or secured.

Section 233 of procedure HNF-5173, PHMC Radiological Control Manual does state,

“Radiological Buffer Areas should be established within the Controlled Area to provide secondary boundaries to minimize the potential for spread of contamination and to limit doses to general employees who have not been trained as radiological workers. Radiological Buffer Areas are not required around inactive or secured Contamination Areas.”

The contractor has posted the U-Plant Operating Gallery with RBA radiological barriers.

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

Observation: S-09-OOD-BOS D&D-002-002

TSR are paraphrased in Implementing Procedures. (OA 22625)

Discussion:

A review was performed of the annual surveillance for U-Plant, 2CP-SUR-U-04006, Section 2.3 pertaining to applicable TSRs lists AC 5.2 (Waste Inventory Control) as being applicable for this surveillance. The wording for AC 5.2 as described in the surveillance is not written exactly word for word as listed in the TSR (HNF 13829).

This difference or paraphrasing of AC 5.2 in the annual surveillance could lead to misinterpretation of the actual TSR requirement as listed under HNF-13829. A follow-up conversation with the Nuclear Safety Engineer confirms other facility surveillances paraphrase the applicable TSR requirement (i.e., B-Plant).

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

Observation: S-09-OOD-BOS D&D-001-003

Wrong Low Level Waste Drum Opened at U-Plant. (OA 22050)

Discussion:

FR was notified by the CPS&M Manager that the wrong drum on the 90-Day storage pad was opened at U-Plant to retrieve a package containing absorbed oil waste (272W hydraulic oil). The package was then disposed of as non-regulated waste. Upon discovery of the mistake the package was found then placed in a low level waste container.

Corrective actions upon discovery include initiating a Radiation Problem Report, a Condition Reporting and Resolution System to help identify additional corrective actions. At a Plan of the Day meeting the CPS&M Manager discussed the event, barriers that were in place to prevent the occurrence, and management's expectation to prevent reoccurrence to ensure TSR compliance.

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

Contractor Self-Assessment:

The FR reviewed the Integrated Evaluation Plan for FY 2008 and FY 2009 (1st Quarter) for any Management Assessments (MA) performed in the Nuclear Safety area. The most recent MA was performed on December 2008, related to TSR Implementation. A weakness was identified that procedures did not clearly identify controls associated with TSRs.

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

Management Debriefed:

Harv Harville, FFTF
Dottie Norman, CPS&M
Dave Romine, CPS&M

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

Division: Operations Oversight Division (OOD)

Surveillant: C Gunion, K Schierman, G Morgan

Surveillance Number: S-09-OOD-LWFS-003

Date Completed: March 24, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Liquid Waste and Fuel Storage (LWFS)

Title: Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) Implementation Review

Guide: Lines of Inquiry Established in Core Surveillance Guide NSS 18.51

Surveillance Scope:

The objective of this core surveillance was to verify contractors were adequately implementing DSA and TSR at facilities and work activities. Individual Facility Representatives (FR) reviewed aspects of their facility's DSA, sampled elements in the DSA to verify implementation, examine implementation of the Unreviewed Safety Question (USQ) process, and finally, reviewed selected USQ screenings and evaluations.

LWFS nuclear facilities included the Waste Encapsulation and Storage Facility (WESF), Canister Storage Building (CSB) and Interim Storage Area (ISA). The WESF, CSB and ISA were Hazard Category II Nuclear Facilities.

The following two Findings and six Observations were identified during this surveillance effort:

- **S-09-OOD-LWFS-003-F01** - WESF safety basis and source documentation did not appear to provide controls for floor loading to account for the Design Basis Earthquake (DBE).
- **S-09-OOD-LWFS-003-F02** - Two ISA Fire Hazard Analysis (FHA) assumptions / recommendations were not implemented / protected as described.

- **S-09-OOD-LWFS-003-001** - A specific configuration management program for WESF was not well defined.
 - **S-09-OOD-LWFS-003-002** - WESF Operations performed a Surveillance Requirement (SR) at a frequency 30 times the required rate.
 - **S-09-OOD-LWFS-003-003** - Several document references in CSB/ISA procedures or safety basis documents were not accurate.
 - **S-09-OOD-LWFS-003-004** - Satisfactory completion of the ISA's International Standards Organization (ISO) Container B annual inspection was not adequately documented.
 - **S-09-OOD-LWFS-003-005** - Numbering of OSU TRIGA overpacks was not consistent between Preventative Maintenance/Surveillance (PM/S) datasheets and OP-29-004S attachment data sheets.
 - **S-09-OOD-LWFS-003-006** - The CSB and ISA TSR Safety Management Programs (SMP) had not been factored into the SMP assessment process.
-

Surveillance Summary:

Activity 1 – Verify Implementation of Selected DSA Elements

1. The FR reviewed passive features that were documented in the contractor's safety basis to mitigate Natural Phenomena Hazards (NPH). The DBE was stated to be the NPH considered in WESF design and construction. Two events were considered; one for the office and support areas and one for those portions of the 225B Building having a radiological confinement function (hot cells and pool cell area). The DBE for the cells areas had a peak ground acceleration of 0.25 g. Safety Class and Safety Significant design features accounted for the above ground acceleration with 5 percent damping and dead plus live loads of 20 lb/ft squared.

Credited TSR controls included radioactive material inventory and heat load Administrative Controls (AC) for hot cells. Also credited for the above was AC 12 - Configuration Management of Design Features. "The requirement for AC 12, as stated in the WESF TSR document HNF-8759, included establishing a program to implement and maintain configuration of WESF design features." The program appeared to be based on a collection of high level documents instead of a specific facility level description.

2. The FR reviewed documentation and observed extant WESF conditions for verification of controls to ensure 225B Area 2 Safety Significant Design Features. Specifically, those controls which would mitigate structural failure in the postulated

DBE. The WESF DSA described Area 2 (hot cells, canyon, hot and cold manipulator shops, manipulator repair shop, operating gallery, service gallery and Aqueous Makeup Area) as able to retain structural integrity during a DBE of 0.25g with damping of up to 5% and designed for dead loads plus a live load of 20 pounds per square foot.

Credited TSR controls, on page 3-53 of the DSA, included this statement, "A program is established and maintained to address change control and configuration management of the TSR design feature to ensure the continued integrity of the SSCs relied upon in the analysis." (SSCs was taken to mean Structures, Systems and Components).

FR review of source documentation (earthquake / seismic analyses 1970 and 2002, WESF NPHs Survey) did not show apparent controls for the live load designation for the DBE. Nor were SMP designated Configuration Management Program controls indicated for how the live load was managed. Further, AC 5.12 - Configuration Control of Design Features was described in WMP-331 WESF Safety Basis Compliance as implemented by several high level site-wide documents without the specificity to identify a control for the WESF.

3. The FR reviewed implementation of ISA inspection requirements identified in HNF-3553, Annex D, Rev 5, *200 Area Interim Storage Area Final Safety Analysis Report*, Sections D2.3.2, D2.7.3, D7.10, D.8.7, and D10.4:
 - The FR verified the inspections had been identified in WMP-331, NS-4-005C, Rev 19, *CSB/ISA Compliance Matrix* - compliance matrix identification numbers ISA-2-01, ISA-2-02, ISA-10-01, ISA-10-02, and ISA-10-04 through ISA-10-08;
 - The FR verified inspection requirements specified were incorporated into implementation procedures OP-24-001S, Rev 2, Change 2, *Perform Routine Operations Surveillance*, and OP-29-004S, Rev 0, Change 2, *200E ISA Annual Surveillance*, for storage containers present in the ISA;
 - The FR observed performance of the ISA-related portions of OP-24-001S on February 27, 2009, and March 3, 2009; and
 - Because performance of OP-29-004S was not due during the evaluation period, the FR reviewed records from the most recent performances of that procedure [work packages EL-08-05180, completed September 9, 2008, for ISO, EL-08-06903, completed November 25, 2008, for Rad Vaults and internal containers/casks/overpacks, and EL-08-02442 and EL-08-02445, completed June 26, 2008, for Interim Storage Casks (ISC)]. The FR also verified CP-24-001S, Rev 1, Change 2, *Perform TSR/PS Verifications*, was being adequately performed / updated for these TSR activities.
4. The FR reviewed implementation of SMP Operational Safety Program (Section 11.0) key attributes at the facility level in accordance with the lines of inquiry specified in HNF-22632, Rev 2, *Process Description for Safety Management Program Implementation Verification*. For the ISA this included key attributes 11-1, 11-2, 11-

4, and 11-7. All Section 11.0 key attributes were also verified to have been addressed in WMP-331, NS-4-005C. The FR also attempted to verify inclusion of the ISA SMPs in the HNF-PRO-35942, Rev 0, *Safety Management Program Assessment Process*, assessment process.

Activity 2 – Verify Implementation of Selected TSR Elements

1. The FR accompanied a WESF operator on facility rounds to verify implementation of TSRs. Operator rounds encompassed performance of two procedures; EO-040-001 - Pool Cell Surveillance and EO-040-002 - Perform General Surveillance. The LWFS organization provided 24-hour operation of the WESF. Each procedure was performed twice per 8-hour shift (Observation S-09-OOD-LWFS-003-002).

EO-040-001 provided instructions for conducting the pool cell surveillance. The purpose of this surveillance was to ensure compliance with HNF-8759, WESF TSRs. In addition, normal operating parameters were monitored to allow general trending by collecting and recording pool cell data. Performance of this procedure satisfied the following TSR Surveillance Requirements:

Limiting Condition for Operation (LCO) 3.1 - Pool Cell Water Level, Surveillance Requirement (SR) 3.1.1.1 - "VERIFY water level in Pool Cell 1 and Pool Cells 3 through 7 is greater than or equal to 130 inches, and in Pool Cell 12 is greater than or equal to 100 inches."

LCO 3.2 - Pool Cell Transfer Port Valves, SR 3.2.1.1 - "VERIFY transfer port valves for active pool cells are open using valve indicators."

AC 5.11 - Radiation Protection Program, required an operable radiation monitor in the pool cell area.

EO-040-002 provided instructions for general surveillance activities at WESF. Ancillary purpose for this surveillance was to verify compliance with AC 5.9, Flammable Gas Controls. The operator inspected for housekeeping, fires, steam, water, or chemical leaks, plugged drains, instrument problems, etc.

The rounds operator was knowledgeable of the WESF and acted in a professional manner. As mentioned above, the two surveillance procedures were performed twice per shift; in effect six times per 24-hour period. HNF-8759 required the LCOs cited in the above procedures be performed at less frequent intervals.

2. The FR accompanied a Stationary Operating Engineer (SOE) on rounds; portions of which were TSR SR.

Procedure EO-040-004, Perform SOE Surveillance, provided instructions for the surveillance of systems under the cognizance of SOEs.

Systems surveilled included chilled water, Heating and Ventilation and Air Conditioning, air compressors, process cells, and cold weather surveillance activities, including steam trap status. The SOE was knowledgeable about WESF systems and professional in manner. Round sheet Conduct of Operations protocols were followed by the SOE. Of particular interest for FR oversight was the following TSR controls in the procedure:

- HNF-8759, LCO 3.3, Pool Cell Area Ventilation;
- HNF-8759, LCO 3.4, Hot Cell Exhaust Ventilation Control; and
- HNF-8759, SAC 5.6, Source Inventory Controls.

Ventilation was monitored by hot cell and area differential pressures read on magnehelic gauges. Radiation levels on final High Efficiency Particulate Air (HEPA) stages were read on strip chart recorders in the WESF Operating Gallery. All readings were within data sheet specification. No issues were identified by the FR.

3. The FR reviewed implementation of SNF-5047, Rev 2, *200 Area Interim Storage Area Technical Safety Requirements*, Administrative Control 5.12, *Combustible Loading Control* and the recommendations of SNF-4932, Rev 2, *Fire Hazard Analysis (FHA) for the Interim Storage Area*:
 - The FR evaluated if the associated AC requirements and FHA recommendations were identified in WMP-331, NS-4-005C (compliance matrix numbers ISA-FHA-01 through ISA-FHA-05);
 - The FR evaluated if the implementing documents specified in NS-4-005C (CP-24-003S, Rev 1, Change 2, *Control of Combustible Materials Within CSB Operating Area and ISA*, OP-29-002S, Rev 0, Change M, *200 Area ISA FFTF Fuel Receipt*, OP-24-001S, and OP-29-004S) adequately implemented the requirements; and
 - The FR observed performance of the ISA-related portions of CP-24-003S on March 3, 2009.
4. TSR Implementation/USQ Program

Together with Assistant Manager Central Plateau personnel, surveillant interviewed CSB nuclear safety personnel and reviewed records on TSR implementation and the USQ program. Five USQ Evaluators and four USQ screeners were found qualified. Four additional personnel were qualified to use the exclusion (GXC-2).

Reviewed USQ Evaluation CSB-09-032, *Disconnecting Existing Wooden Light Poles*, to disconnect power and install area lighting:

Because this power affects the ISA but not the CSB, there was no USQ.

Reviewed USQ Evaluations CSB-09-006 and CSB-09-007:

These evaluations properly concluded that there was no USQ. Reviewed USQ Screenings CSB-09-038, and CSB-09-042. CSB-09-038 reviewed a Variance for criticality safety programs; because this guided the criticality program but did not affect physical changes at CSB, there was no USQ. CSB-09-042 reviewed OP-12-003S, for preparing casks for shipment to the K-West Basin. Because the procedure was consistent with the safety basis, and did not change the facility, no USQ was created.

Reviewed USQ screening CSB-09-074, for qualification of Quality Assurance (QA) Engineers:

The procedure establishes CHPRC training and qualification requirements for QA Engineers. The requirements were consistent with the safety basis, which required a qualification program and implements Recommendation 93-3. Because this does not change requirements in the safety basis, or change the facility, there is no USQ.

Reviewed Potentially Inadequate Safety Analysis (PISA) Determination CSB-08-180, on HEPA filter aging:

This properly identified a PISA, due to previous not fully adequate filter life evaluations. This did not result in an USQ because the CSB HEPAs were changed out before reaching ten years service life. While interviewing personnel, a work package was presented for approval. The nuclear safety personnel reviewed the work package for TSR impacts, and ensured that it had been screened for USQs. The package preserved the combustible loading limits, and had been screened. The review was performed professionally and in a timely manner.

Surveillance Results:

Finding: S-09-OOD-LWFS-003-F01

WESF safety basis and source documentation did not appear to provide controls for floor loading to account for the Design Basis Earthquake (DBE). (OA 22243)

Requirement(s):

10 CFR 830.202 Safety basis states,

“(a) The contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility must establish and maintain the safety basis for the facility.

(b) In establishing the safety basis for a hazard category 1, 2, or 3 DOE nuclear facility, the contractor responsible for the facility must:

(5) Establish the hazard controls upon which the contractor will rely to ensure adequate protection of workers, the public, and the environment.”

And,

DOE O 420.1B *Facility Safety* states,

“3. DOE facilities and operations must be analyzed to ensure that SSCs and personnel will be able to perform their intended safety functions effectively under the effects of NPH. Where no specific requirements are identified, model building codes or national consensus industry standards must be used consistent with the intended SSC functions.

a. Natural Phenomena Mitigation Design.

(1) Facility SSCs must be designed, constructed, and operated to withstand NPH and ensure—

(a) confinement of hazardous materials;

(b) protection of occupants of the facility, as well as members of the public;

(c) continued operation of essential facilities; and

(d) protection of government property.”

Discussion:

Contrary to the above, the CHPRC did not identify floor loading controls in the DSA in the event of a DBE. FR review of the source, DSA and implementing documents for seismic DBE determined no specific controls for evaluated loads. As described in the DSA, the 20 lbs / square foot live load applied to floor slabs as well as the roof. Chapter 4.0, Section 4.4.1.2 of the DSA stated, “The Area 2 is a two-story above grade structure with a reinforced roof and floor slabs supported by reinforced concrete shear walls.” Section 4.4.1.3 stated Area 2 structure shall meet the following minimum parameters:

- Peak ground acceleration of 2.5 m/s² (0.25 gravity);
- Damping up to 5 percent; and
- Dead loads plus a live load of 20 lb/ft² (for Area 2 and 3 structures only).

The following concerns were identified for evaluation:

- 1) No floor loading control program;
- 2) No documentation found to support posted 100 pounds / square foot floor load, only seismic study which designates 20 pounds / square foot;

- 3) No contractor procedure established for maximum floor loads;
- 4) No one designated as responsible for floor loading capacity; and
- 5) Accident scenario with no operational control.

Subsequent to the finding, the CHPRC has modified the DSA to clarify floor and roof loading controls. The modification was included in the annual DSA update.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-LWFS-003-F02

Two ISA Fire Hazard Analysis (FHA) assumptions/recommendations were not implemented / protected as described. (OA 21990)

Requirement(s):

CRD O 420.1B, Supplemented Rev 1, Section B.1.h, states in part, "Implementation Plans for fire hazard analyses. The results of a fire hazard analysis may determine that implementation of 'recommendations' or corrective actions to address deficiencies are required in order for the facility to demonstrate that the fire protection objectives of DOE O 420.1 and life safety are met. Following completion, and RL review of the FHA, the contractor shall develop an FHA implementation plan."

Discussion:

Contrary to the above requirement, two FHA recommendations (4 and 5) were not being implemented/protected as described in the FHA.

SNF-4932, Rev 2, (issued August 21, 2008), *Fire Hazard Analysis for the Interim Storage Area*, Section 18.0, Recommendation 4, states, "Provide some form of two-way communication during activities inside the ISA. Status: This recommendation is closed as of the 2007 update. Requirement for two-way radio communication addressed in each of the 200 Area ISA Operating Procedures (CP-24-003S, OP-29-002S, OP-29-003S, and SP-29-001S)."

Neither CP-24-003S (Rev 1, Change 2, issued December 15, 2008) nor OP-29-002S (Rev 0, Change M, issued August 28, 2008) required the use of two-way communication during activities inside the ISA. SP-29-001S had been converted to OP-29-004S (Rev 0, Change 2, issued November 21, 2008). OP-29-004S did not require the use of two-way communication either. OP-29-003S was inactive and therefore was not reviewed.

When the FR observed the performance of CP-24-003S he noted personnel entering the ISA with radios. Subsequent discussions with the Shift Operations Manager (SOM) indicated CSB/ISA Operations personnel always carry radios, but she was not aware of the specific recommendation/expectation of the FHA to do so during ISA entries.

Recommendation 4 was not identified in the suite of WMP-331, NS-4-005C (Rev 19, issued August 28, 2009) compliance matrix identification numbers designated for the FHA (ISA-FHA-01 through ISA-FHA-05).

Also, SNF-4932, Rev 2, contained a Recommendation 5, stating, "A prefire plan must be developed by the HFD prior to any dry cask storage systems being placed in the ISA. Status: This recommendation is closed as of the 2007 update. The pre-fire plan has been updated. Reference HFD Pre-Incident Plan, Interim Storage Area, 200 East, Platoon B, Revised 11/2/2005," and a new Recommendation 1, stating, "The pre-fire plan must be revised by the HFD prior to any new dry cask storage systems being placed in the ISA." Neither recommendation, nor the "prefire plan," was identified in WMP-331, NS-4-005C.

Although the FHA and several of the implementing procedures were issued prior to transition to the CHPRC, it was incumbent upon the CHPRC to assure adequate implementation of FHA requirements per CRD O 420.1B, Supplemented Rev 1.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-LWFS-003-O01

A specific configuration management program for WESF was not well defined. (OA 22023)

Discussion:

Program key elements for AC 12 as stated in HNF-8759 shall address change control, document control, configuration management implementation, and periodic assessments. The "program" as described to fulfill the key elements was a list of the following documents: WMP-200, Section 4.3 Unreviewed Safety Questions; HNF-PRO-062, Unreviewed Safety Question Process; HNF-PRO-12115, *Work Management*; HNF-PRO-2001, *Facility Modification Package Process*; HNF-PRO-20050, *PHMC Engineering Configuration Management Process*; HNF-PRO-9662, *Independent Assessment Process*; HNF-PRO-246, *Management Assessment*. Interestingly, HNF-RD-8310, *Document Control Program* was missing from the list. None of the above documents would describe how the "program" applied to configuration management of WESF design features.

Configuration management was documented as an issue in October 2008, when WESF personnel violated hazardous energy control requirements. The FR performed reactive surveillance S-09-OOD-LWFS-001 identifying past configuration control issues in addition to the hazardous energy event.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-LWFS-003-O02

WESF Operations performed a Surveillance Requirement (SR) at a frequency 30 times the required rate. (OA 21871)

Discussion:

SR 3.1.1.1, verify pool cell water level, was required every 5 days. SR 3.2.1.1, verify transfer port valves were open, was required every 7 days. These requirements were performed by operators at a much greater frequency of 6 times per 24-hour period.

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

Observation: S-09-OOD-LWFS-003-O03

Several document references in CSB/ISA procedures or safety basis documents were not accurate. (OA 21990)

Discussion:

WMP-331, NS-4-005C, Rev 19, *CSB/ISA Compliance Matrix*, compliance matrix identification number ISA-AC-5.12 identified CP-24-003S, Step 2.4 as the implementation of TSR (SNF-5047, Rev 2) AC 5.12.2.b. The correct step to reference was 2.6.

CP-24-003S, Rev 1, Change 2, *Control of Combustible Materials* within CSB Operating Area and ISA, Step 5.1.2.c, stated, "Document out-of-compliance conditions and actions taken in Comment section of Attachment 1." Attachment 1 contained no Comment section.

Although the cover sheet and references identified referred to OP-24-001S, Rev 2, Change 2, *Perform Routine Operations Surveillance*, every subsequent page of the procedure identified the document as OP-24-0001S. OP-29-004S, Rev 0, Change 2, *200E ISA Annual Surveillance*, Step 5.3.14, states, "Perform 5-Year ISA inspection in accordance with Attachment 6." The correct attachment number was 7. The records instructions in Section 6.1 of OP-29-004S did not include guidance for Attachment 8.

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

Observation: S-09-OOD-LWFS-003-O04

Satisfactory completion of the ISA's International Standards Organization (ISO) Container B annual inspection was not adequately documented. (OA 21990)

Discussion:

The FR reviewed completed maintenance work packages that were used to accomplish OP-29-004S, *200E ISA Annual Surveillance*. One of those work packages, EL-08-05180, performed the annual inspection of ISO containers present in the ISA on September 9, 2008. Review of the document provided inconclusive evidence as to whether the inspection of ISO container B was acceptable.

In the acceptance section of OP-29-004S, Step 5.4.1, the question, "Were discrepancies or failures found?" was marked "Yes," and the question, "Are further repairs, replacements, adjustments, calibrations or corrective actions needed?" was also marked "Yes." In addition, where it stated to "Record any discrepancies or failures below," the following was entered: "See comments on Attachment 6." The OP-29-004S, Attachment 6 data sheet for ISO container B was marked "Unsat" for step 6, "QAE/I Visually inspect ISO internal surfaces." Two notes were recorded in the comments section of the data sheet: "Front door seals (Top) need to be replaced. Signs of water drop in side of doors;" and "JCS Recall shall be set up to replace gasket." The Work Record contained a September 29, 2008 entry that stated, "Work Package EL-08-06165 initiated, 'CSB - Replace ISO-B Front Door Seal.'" The PM/S data sheet (IS-00424), also enclosed, was marked that the preventive maintenance was "Completed Satisfactory" and was signed by the SOM.

The FR requested a copy of EL-08-06165 to verify the ISO container B front door seal had been replaced, but was told by the Design Authority that the package had not been initiated. He stated in an email that "it is not correct that any ISO gaskets failed annual inspection. Due to noted existing wear and potential future degradation over the long term, a work package to replace ISO B front door gasket is in development. It is intended that the Work Package will be worked at the next annual inspection interval contingent on as-found gasket condition, favorable weather and availability of resources. Immediate replacement of the gaskets is not planned because; a) Gasket integrity was not significantly degraded such that the gaskets will not perform intended function and it is not evident that gasket failure would occur anytime soon. b) The ISO containers are in an RMA and the condition of these gaskets did not/does not warrant immediate replacement."

Although the FR accepts the authority and expertise of the Design Authority to make the determination that the ISO container integrity was acceptable, the documentation available in EL-08-05180 was not adequate to draw the conclusion that ISO B container's condition had been accepted and why.

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

Observation: S-09-OOD-LWFS-003-005

Numbering of OSU TRIGA overpacks was not consistent between Preventative Maintenance/Surveillance (PM/S) datasheets and OP-29-004S attachment data sheets. (OA Report #22345)

Discussion:

A review of work package EL-08-06903 for the annual inspection of Rad Vaults, DOT-6M containers, NRF TRIGA casks, and OSU TRIGA overpacks, indicated a discrepancy in the numbering of some OSU TRIGA overpacks. The PM/S Data Sheet for seven of the overpacks identified them as numbers 5, 6, 7, 11, 13, 15, and 16. The OP-29-004S Attachment 8 data sheets identified the overpacks as numbers 0005, 00015, 017, 023, 028-0007, 017 (again), and 013. When the FR questioned the SOM who had performed the inspection why there was a discrepancy between the number the SOM stated often the bottom of the over pack was numbered differently than the lid and due to how tightly the overpacks were jammed into the Rad Vault often both numbers could not be identified. Personnel recorded only what they were able to discern. Although the Tamper Indicating Devices were in place when the Rad Vault was opened and seven overpacks were present as expected, numbering verification was not able to be completed. The SOM stated he has reported the issue, but no resolution was offered.

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

Observation: S-09-OOD-LWFS-003-006

The CSB and ISA TSR Safety Management Programs (SMP) had not been factored into the SMP assessment process. (OA 22079)

Discussion:

On September 9, 2008, a revision to Attachment I of HNF-PRO-35942, Rev 0, *Safety Management Program Assessment Process*, was issued, identifying the CSB and ISA TSRs on the "List of Projects Implementing HNF-11724." As such the requirements of HNF-PRO-35942 became applicable to each of those facilities. Section 5.1 of HNF-PRO-35942 describes development of an annual SMP assessment schedule, such that each SMP element will be assessed at least once every three years. On February 24, 2009, the FR requested to be provided the assessment schedule for the ISA SMPs. The Integrated Evaluation Plan manager responded that the CSB and ISA SMPs had not yet been entered into the database for scheduling or performing SMP assessments. Although HNF-MP-599 (and HNF-PRO-35942) requires assessments over a three year period, it did not appear to be a best practice to allow approximately six months passing without factoring the CSB and ISA SMPs into the assessment process.

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

Contractor Self-Assessment:

The contractor performed an assessment of TSR implementation at the WESF in December 2008. The assessment identified some inconsistencies between required actions in a Limiting Condition for Operation and actions in implementing procedures. An opportunity for improvement was also identified in measurement units for Ion Exchange Module loading parameters.

Because of Observation S-09-OOD-LWFS-003-O06, the FR determined the contractor's self-assessment efforts were inadequate.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:
Monica Kembel – CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: Sandy Trine, Ed MacAlister, Sharee Dickinson

Surveillance Number: S-09-OOD-PFP-003

Date Completed: March 31, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR)
Implementation Review

Guide: Lines of Inquiry Established in Core Surveillance Guide NSS 18.51

Surveillance Scope:

The objective of this core surveillance is to verify contractors are adequately implementing DSAs and TSRs at facilities and work activities. Individual Facility Representatives (FRs) reviewed aspects of their facility's DSA, sample elements in the DSA to verify implementation, examine implementation of the Unreviewed Safety Question (USQ) process, and finally reviewed selected USQ screenings and evaluations.

Surveillance Summary:

The surveillance required verification of implementation of selected elements of the PFP DSA and TSR requirements, including a flow down of requirements through matrix documents which annotate facility specific implementing procedures, review of selected implementing procedures, and field verification procedure use. The three areas identified as Limiting Conditions for Operations and Surveillance Requirements for PFP were reviewed; Criticality Safety, Confinement/Ventilation Systems, and Fire Protection. Two of these areas are specific Safety Management Program (SMP) elements.

The FRs "pulled the string" for each of the three subject areas to verify flow down of requirements from the DSA/TSR, though applicable compliance matrix documents, implementing procedures and field verification of procedure use. Overall, the FR's concluded that PFP has adequately implemented their safety basis program. Assumptions in the accident analysis regarding quantities of radioactive and

hazardous materials at risk appear appropriate. Operator actions and passive features to mitigate abnormal events and emergencies flow down from safety basis documents and are appropriately documented in facility specific procedures and work instructions. Facility personnel are cognizant of these requirements and their need to meet them as they work with the procedures and work instructions in the field. PFP adequately implements the administrative programs to maintain the DSA/TSR, compliance matrixes, and procedures up to date. PFP utilizes numerous compliance matrixes to document implementation of TSR controls in facility specific procedures. Review of the matrixes and procedures found they adequately capture TSR requirements. TSR controls are appropriately highlighted in implementing procedures and the procedures adequately implement the TSR requirements. When the implementing procedures are being performed the activity, adequately verifies the TSR requirements. The management assessment process is generally completing required self assessments of the various SMP elements within the scheduled Integrated Evaluation Plan (IEP) schedule.

In reviewing flow down of requirements, the FR's reviewed, in part, the following documents:

- HNF-15500 Rev 4A, *Plutonium Finishing Plant Deactivation & Decommissioning Documented Safety Analysis*;
- HNF-15502 Rev 4B, *Plutonium Finishing Plant Deactivation & Decommissioning Technical Safety Requirements*;
- HNF-39603 Rev 0, *Justification for Continued Operations – HEPA Filter Performance Criterion May Not be Met*;
- HNF-7098, *Criticality Safety Program Revision 17*;
- HNF-SD-CP-SDD-010, Revs 5 and 8, *Plutonium Finishing Plant Fire Sprinkler, Detection, and Alarm System Design Description*;
- HNF-SD-CP-SDD-003, Revision 17, *Definition and Means of Maintaining the Criticality Detectors and Alarms Portion of the PFP Safety Envelope*;
- FSP-PFP-5-8, Vol 1 Rev 22 Chg 4, *Plutonium Finishing Plant Administration, Sections 3.3 Criticality Safety*;
- FSP-PFP-5-8, Vol 1 Rev 12 Chg 14, *Plutonium Finishing Plant Administration, Sections 3.7 and Appendix A Fire Protection Systems*;
- FSP-PFP-5-8, Vol 2 Rev 10 Chg 23, *Plutonium Finishing Plant Administration, Section 13.3 Appendix A HNF-15502 Compliance Matrix*;
- FSP-PFP-5-8, Vol 2 Rev 7 Chg 17, *Plutonium Finishing Plant Administration, Section 13.3 Appendix B HNF-17927 Compliance Matrix*;
- FSP-PFP-5-8, Vol 2 Rev 7 Chg 8, *Plutonium Finishing Plant Administration, Section 13.3 Appendix C HNF-11724 Compliance Matrix*;
- FSP-PFP-5-8, Vol 2 Rev 7 Chg 5, *Plutonium Finishing Plant Administration, Section 13.3 Appendix D Safety Evaluation Report Compliance Matrix*;
- HNF-PRO-35942 Rev 0, *Safety Management Program Assessment Process*;
- HNF-22632 Rev 2, *Process Description for Safety Management Program Implementation Verification*;
- ZSE-99A-002 Rev H Chg 9, *Criticality Alarm System, Neutron Criticality Detector System and Alarm Operability Test*;
- ZSE-99A-011 Rev I Chg 1, *Criticality Alarm*; and
- ZSE-99E-001 Rev A Chg 6, *Criticality Safety Features Inspection*.

The FRs reviewed work packages and/or observed the associated pre-job briefings and field work activities for:

- 2Z-08-07744 3/6/12/24M, *Riser 11 Inspection/Test*;
- 2Z-07-01166/W, *Replace HEPA filters in FR-310 (E-4)*;

- ZO-060-300, *Switching Filter rooms 309 through 318;*
- ZO-060-117, *Power and Ventilation Equipment Surveillance;*
- ZO-060-100, *Operate Ventilation Controls;*
- ZO-060-102, *Shutdown and Startup 236-Z/234-5Z Ventilation System;*
- ZSE-25A-002, *Aerosol Test of E-4 Filter Room 310, 234-5Z;*
- ZSE-99A-011, *Criticality Alarm System Operability Test and Calibration; and*
- ZSE-99A-002, *Criticality Alarm System, Neutron Criticality Detector System and Alarm Operability Test.*

Surveillance Results:

No concerns, findings, or observations resulted from this surveillance activity.

Contractor Self-Assessment:

The FR's met with the PFP/Balance of Site/ Surveillance & Maintenance, Nuclear Safety, Criticality Safety, Quality Assurance/Quality Control and Non Destructive Analysis Manager, and the designee for SMP assessment oversight to discuss status of completion of SMP assessments as documented in the IEP. FR's reviewed the schedule of assessments and a sample of completed assessments to verify Safety Management Program Implementation in accordance with HNF-22632. Assessment completion is being actively tracked to verify assigned personnel are completing assessments. Review of management assessments noted that scope and breath of assessments covered Key Attributes and Lines of Inquiry specified in HNF-22632. Various PFP IEP User Run Queries associated with the three subject areas were performed to obtain management assessments in the time frame of Fiscal Year 2007 to date. FR received and reviewed the following assessments:

- PFP-FP-09-MA-003, *Periodic Inspection of Nuclear Facility Combustible Materials & Ignition Sources;*
- CSI-FP-09-MA-15, *Fire System Exemption and Equivalency Periodic Review Process;*
- PFP-NS-07-MA-005, *Fire Prevention Program (SMP);*
- ESHQ-NCS-08-MA-09, *Effectiveness Review of the Actions to prevent TSR violation of Key Attribute at PFP;*
- PFP-OSH-09-MA-00,7 *Assessment of Scaffold Erection, Use, and Dismantling at the Plutonium Finishing Plant*
- FH-OA-IA-07-001, *Vital Safety Systems-HVAC;*
- FH-NCS-08-034, *Management Assessment of the Fluor Hanford Criticality Safety Program;*
- ESHQ-NCS-08-MA-04, *Criticality Safety Programmatic Assessment of the Plutonium Finishing Plant Inspection Program; and*
- PFP-NS-08-MA-025, *Management Assessment of the Plutonium Finishing Plant Closure Project Technical Safety Requirements Implementation.*

This review found the contractor self assessment program of the SMP was being adequately implemented.

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

Management Debriefed:

James Brack, FFS
Mark A. Crocker, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Dennis Humphreys

Surveillance Number: S-09-OOD-SNF-002

Date Completed: March 28, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Spent Nuclear Fuel (SNF), 100K Project

Title: Documented Safety Analysis (DSA) and Technical Safety Requirement (TSR)
Implementation Review

Guide: Lines of Inquiry Established in Core Surveillance Guide NSS 18.51

Surveillance Scope:

The objective of this core surveillance is to verify contractors are adequately implementing DSAs and TSRs at facilities and work activities. Individual Facility Representatives (FRs) should review aspects of their facility's DSA, sample elements in the DSA to verify implementation.

Surveillance Summary:

Activity 1 – Verify Implementation of Selected DSA Elements

The FR reviewed the following DSA implementation matrices:

NS-4-005A, SB Document Implementation Matrix – K Basin, Rev/Change 14/HHH
NS-4-005B, SB Document Implementation Matrix – Cold Vacuum Drying Facility
(CVDF), Rev/Change 9/E

No issues with the matrices reviewed.

The FR selected the below elements of the DSA and the associated implementing documents:

- AC 5.11.2.8 – Emergency Preparedness Program as described in Chapter 15 of the FSAR (K Basins).
 - ER-SNF-002,
 - ER-SNF-013

- AC 5.13.1 (CVDF) - A program shall be established, implemented, and maintained to limit the combustible loadings to the quantities and locations allowed in the fire hazard implementation plan (SNF-4942, *Spent Nuclear Fuel CVDF Implementation Plan for Fire Hazard Analysis Suggested Actions*).
 - Administrative Procedure -FP-4-014, *Fire Protection Program*, Rev/Change 5/P.
 - CP-24-001V, *Control of Combustible Materials within CVDF*, Rev/Change 0/N

FP-4-014 implements the requirements of the AC for the 100K Project. CP-24-001V ensures the amount of combustible material within CVDF is within the limits set by the Fire Hazards Analysis and satisfies the AC 5.13.2 requirement to periodically evaluate facility combustibles material loading and compare it to fire hazard implementation plan limits.

Based on the above there are no issues with the flow-down of documents from the DSA to the implementing documents for the ones reviewed. The FR was able to verify implementation of the selected DSA elements.

Activity 2 – Verify Implementation of Selected TSR Elements

The FR selected the below listed TSRs:

TSR (SR	SR 3.3.1 VERIFY 105-KW SCS container Sludge level is	CP-07-002
3.3.1)	less than or equal to 9 ft above the Basin floor.	OP-06-002W

Frequency: Twice weekly

TSR (LCO PROCESS AREA APPLICABILITY

OP-06-002W

3.3) 105 KW Basin, when the associated 105-KW SCS container is determined to be full.

A. 105-KW SCS container Sludge level greater than 9 ft above the Basin floor

A.1 Restore the 105-KW SCS container Sludge level to less than or equal to 9 ft above the Basin floor within 10 days.

AP OP-2-028

B. Required Action and associated completion time for condition A not met.

B.1 Develop a Facility-approved recovery plan and initiate actions to restore compliance with this LCO within 10 days.

TSR (LCO PROCESS AREA APPLICABILITY:

OP-70-034W

3.2) Transfer bay area from the time that the helium purge of the cask headspace at the K Basin is completed and the cask pressure boundary is established until the time the MCO has left the K Basin Facility.

A. IF the time interval between completion of the cask headspace helium purge and establishment of the cask pressure boundary and when the MCO is vented is [greater than] 24 hours.

A.1 IMMEDIATELY AND Every 8 hours for the next 3 vent cycles AND Every 4 hours thereafter Open the cask vent port valve until pressure is relieved.

B. If the Required Actions or Completion Times of Condition A not met.

B.1 Develop a Facility-approved recovery plan and initiate actions to restore compliance with this LCO within 24 hours

Based on the review of the applicable TSRs and the implementing documents the FR confirmed the following for the TSRs selected:

- The facility implementation matrix accurately defines the procedures that implement the TSR controls.
- The implemented TSR controls are highlighted in the implementing procedures.
- The implementing procedure adequately implements the TSR.

CP-07-002, *TSR/Process Standard (PS) REQUIREMENTS VERIFICATION*, is the project's method for routine TSR implementation verification as described in the below paragraph from the CP:

- The Shift Operations Manager (SOM) or delegate is responsible to ensure compliance with TSR at all times. This procedure provides a method to record and document TSR and PS requirements for 105-KW Basin. This procedure will be used for a calendar month at a time. At the end of the calendar month, necessary information will be transferred to a new copy of this procedure and the previous copy completed.
 - No findings or observations were generated. The FR did identify a good practice developed and implemented at the 100K project that meets or exceeds the requirements of DOE 5480.19, XVI, C.2.o. See the discussion under surveillance results for details.
-

Good Practices:

DOE 5480.19, Chapter XVI, C.2.o provides the following:

Procedures should be developed with consideration for the human-factor aspects of their intended use. For example, references to components should exactly match drawing and label-plate identifiers, units should be the same as those marked on applicable instrumentation, and charts and graphs should be easily read and interpreted. Important factors (such as operating limits, warnings, cautions, etc.) should be highlighted.

The 100K Project developed and implemented a Desk Instruction, PROC-DI-001 (*Technical Procedures Writer's Guide*), with the following expectation:

- Safety Analysis Report (SAR), Safety Analysis Report for Packaging (SARP), TSR, and PS limits and controls are usually identified by shading the area in which they are referenced. The following box (wording may vary slightly) is shown in the "Precautions and Limitations" section of procedures that contain SAR, SARP, TSR, or PS limits and controls.
- **Shaded text refers to TSR or PS limits and controls. If a limit and/or a control is not being complied with, or if the procedure cannot be performed in compliance with the limit or control, SOM must be notified immediately. Refer to the applicable TSR or PS for appropriate actions.**
- When a procedure (such as Operator rounds sheets) uses shading for other reasons, an alternate method for highlighting SAR, SARP, TSR and PS information may be used, provided the procedure contains an explanation of the alternate method of highlighting.
- Steps that include SAR, SARP, TSR, and PS limits and controls need to include a reference to the applicable document. SAR, SARP and TSR

references usually include the paragraph number; PS references usually include only the PS number.

- 100K Project Procedure, MS-9-001, *Procedure Process*, ask the following question for all review:
- Are SAR/SARP/TSR/PS steps in Technical Procedures shaded/referenced properly?

MS-9-001 and PROC-DI-001 supplement and implement the requirements of HNF-PRO-589, *Project Hanford Management System Documents*. HNF-PRO-589 is the implementing document for DOE 5480.19, Chapter XVI. HNF-PRO-589 provides only the following direction regarding TSRs in procedures:

- Incorporate Technical Specifications (TSs), TSRs and other applicable requirements or limits.
- The 100K Project Conduct of Operations Matrix list HNF-PRO-589, MS-9-001, and HNF-RD-8547 as the implementing documents for Chapter 2 of DOE 5480.19. It is actually the Desk Instruction that provides any instructions that meet the intent of DOE 5480.19, Chapter XVI, C.2.o.
- HNF-RD-8547 provides the following direction - TS, TSRs [formerly Operational Safety Requirements (OSRs)], and all other applicable requirements or limits shall be identified.
- The practice implemented and followed by the 100K Project through MS-9-001 and PROC-DI-001 provide an excellent in meeting the requirements of DOE 5480.19 and HNF-RD-8547.

Contractor Self-Assessment:

The 100K Project is in the process of conducting an Unreviewed Safety Question Annual Assessment, 100K-NS-09-MA-08. Other nuclear safety assessments were conducted in 2008, with two assessments scheduled in CY 2009 for the Third Quarter; including the TSR/PS Implementation surveillance. No issues noted.

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

Management Debriefed:

Darrell Riffe, ESH&Q Manager
Gail Chaffee, Nuclear Safety Engineer
Terry Hisson, Operations Manager
Jim Meeker, Operations Specialist

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

Division: Operations Oversight Division (OOD)

Surveillants: JE Trevino, DH Splett, PJ Macbeth, MW Jackson, AJ Colburn

Surveillance Number: S-09-OOD-SWOC-002

Date Completed: March 31, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Solid Waste Operations Complex (SWOC)

**Title: Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR)
Implementation Review**

Guide: Lines of Inquiry Established in Core Surveillance Guide NSS 18.51

Surveillance Scope:

The objective of this surveillance was to verify that contractor personnel were adequately implementing DSA and TSRs at the SWOC facilities and during work activities.

Surveillance Summary:

The Surveillants reviewed implementation of TSR Specific Administrative Controls 5.6.1, *Venting Waste Containers*, 5.6.5, *Truck and Equipment Refueling*, 5.6.7, *Fire Protection*, 5.6.10, *Vehicle Access Control*, and 5.6.12, *Container Management* during this surveillance. The Surveillants also reviewed Limiting Condition for Operation (LCO) 3.2.1, *Fire Sprinkler Systems Shall be Operable*, and Safety Management Program 15, *Emergency Preparedness*.

Three Observations were identified:

- **S-09-OOD-SWOC-002-O01:** Inconsistent identification of Compliance Matrix Implementing Documents (CMID).
 - **S-09-OOD-SWOC-002-O02:** Inconsistencies with the SWOC Safety Equipment Lists.
 - **S-09-OOD-SWOC-002-O03:** Compliance Matrix improvements.
-

Surveillance Results:

Observation: S-09-OOD-SWOC-002-O01

**Inconsistent identification of Compliance Matrix Implementing Documents (CMID).
(OA 22080)**

Discussion:

The entry in the SWOC Safety Basis Compliance Matrix for LCO 3.2.1, 'Fire Sprinkler Systems Shall be Operable as described in the Basis', lists the source document, HNF-15280, *Technical Safety Requirements Solid Waste Operations Complex*, as the implementing document for this LCO at both T-Plant and WRAP. The entry for Central Waste Complex (CWC) also lists surveillance requirement SR 4.2.1.1 as an implementing document. This provides additional information that is also applicable to T-Plant and Waste Receiving and Processing Facility (WRAP). Since the LCO and the LCO surveillance requirements apply to all three facilities the implementing document entries for the three facilities should be the same.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-SWOC-002-O02

Inconsistencies with the SWOC Safety Equipment Lists. (OA 22426)

Discussion:

HNF-SD-WM-SEL-012, Rev 18, *LLBG and CWC Safety Equipment List*, included table 4.2-1 *Safety Significant System Functional Requirements* which provided a clear link between the functional requirements, accident prevention method, and specific TSRs for the Low Level Burial Ground (LLBG) drum venting system. However, the same level of detail was not present for the venting system in use at CWC. Inclusion of a similar table for the CWC drum venting system would improve understanding and aid elimination of possible confusion as to the expectation for safety significant equipment at CWC.

Also, the SELs for T-Plant, CWC and the LLBG are inconsistent in the Safety Significant designation of equipment incorporated into the drum venting systems at these facilities. The CWC utilizes a Drum Venting System 2 (DVS2) which is very similar to the 55 gallon Drum Venting System in use at T-Plant. The LLBG and CWC SEL lists the DVS2 Drill Bit, Drill Motor and Ground Bus as being Safety Significant. The drill bit, motor and ground bus used in the T-Plant system are classified as general service and are not included on the T-Plant SEL. The functional requirements appear to be the same, so the safety classifications should also be the same, or explanation provided in the documentation as to the reasons for differences.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-SWOC-002-003

Compliance Matrix improvements. (OA 22426)

Discussion:

Review of the SWOC Master Documented Safety Analysis (MDSA) Compliance Matrix identified several needed corrections, editorial errors, and possible improvements to the matrix and implementing procedures.

- WMP-350, Section 3.20 should be added to CMID 18361a for WRAP.
- DO-100-129 has several steps labeled for compliance with TSR SAC 5.6.10 that do not show on the compliance matrix. Steps 2.29 and 5.1.6 are labeled as TSR SAC 5.6.10.e, Step 2.18 is labeled as TSR SAC 5.6.10.i.
- As an opportunity for improvement to the next revision of the Compliance Matrix, each CMID should show only one complete requirement. Some CMIDs contain multiple requirements, and others break single requirements into several pieces. The manner in which the requirements are listed in the compliance matrix, often with multiple statements per identifying CMID number, makes it not clear if each referenced implementing document is expected to completely implement that item, or if only partial implementation is expected per procedure referenced. In the later case, each referenced implementing document may only partially cover the requirements listed in that item, but taken together they fully implement the requirements. For example, the requirement to ensure the headspace is non-flammable allows the use of calculations based on diffusion and mixing to meet this requirement. Although two procedures were referenced as implementing this requirement at CWC, one of them did not discuss this specific detail. In this case, CMID 18121c of the compliance matrix allows use of calculations to ensure non flammable headspace, monitoring or sampling head space as another method, and allowance to terminate the abatement period based on these two methods. The allowance to use analysis to ensure non-flammable headspace was not found in SW-100-190, but was found in WMP- 342, Section 5.8. The same condition exists at LLBG where procedure SW-100-154 is referenced as implementing this requirement, but doesn't appear to include the use of analysis as a method to ensure non-flammable headspace. A similar condition was found for implementation of CMIDs 18121h and 18121i in the compliance matrix for both CWC and LLBG, in which the referenced implementing procedure WMP-342, Section 5.5 did not appear to include a discussion on over-packing of unvented drums that are bulged or retention in the over-pack during the abatement period; however, these requirements are included in SW-100-190.
- There are several CMIDs that do not properly print out the complete text of the SAC requirement. Examples include CMIDs 18361g, 18361l, and 18361n.

Editorial improvements (both matrix and implementing procedure improvements):

- The title of SW-100-095 is “Overpack Containers”, not “Container Overpack Containers”.
- WRP1-OP-0502, Steps 2.15 and 5.8.1.a, show TSR SAC 5.6.10.I. The “I” should be lower case “i”.

- SW-100-163, Attachment 1, Item 7, SW-100-173, Attachment 3, Item 7, SW-040-041, Attachment 1, Step 7, and SW-040-043, Attachment 16, Item 7 should bold “[TSR 5.6.12-ACMP]”
- DO-100-055, Step 2.1 should indicate compliance with TSR SAC 5.6.1.c.
- WMP-342, Section 4.1, Step 4.7.12 should be labeled to indicate compliance with TSR SAC 5.6.10.j.
- SW-100-157 should add a step implementing TSR SAC 5.6.10.c to ensure spotters are used as required.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

Considerable self-assessment activities have been performed by CHPRC during transition from Project Hanford Management Contract and during implementation of MDSA, Revision 5/5A. Implementation plans were developed for implementation of Revision 5/5A at each of the Waste & Fuel Management facilities including T-Plant, WRAP, WRP, and CWC. Training was conducted on Revision 5/5A implementation and on the changes to associated procedures. An Implementation Validation Review was conducted at each of the facilities and documented. The MDSA has been reviewed and evaluated in significant detail for corrections and improvements during 2008 and 2009. Contractor self-assessment is considered adequate in this area.

Contractor Self-Assessment Adequate: YES NO

Management Briefing:

B. V. Burrow, CHPRC
 S. L. Metzger, CHPRC
 S. Mortensen, CHPRC
 C. V. Phillips, CHPRC
 D. G. Saucedo, CHPRC
 T. C. Synoground, CHPRC



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

09-SED-0109

JUN 01 2009

Mr. D. G. Ruscitto, President
and Chief Executive Officer
Fluor Hanford, Inc.
Richland, Washington 99352

Dear Mr. Ruscitto:

CONTRACT NO. DE-AC06-96RL13200 – FLUOR HANFORD, INC. (FHI) ELECTRICAL UTILITIES (EU) WORK CONTROL (S-09-SED-FHI-012)

The purpose of this letter is to transmit RL Surveillance Report S-09-SED-FHI-012 dealing with the effectiveness of the FHI EU work control program. The report identifies one concern, five findings, and one observation. Based on the results of this surveillance, which identified significant issues involving the compliance to electrical safety requirements and adequate planning/coordination of electrical work that affects other DOE projects and facilities, you are requested to provide a corrective action plan in accordance with CRD O 470.2B (Supplemented Rev. 2), Independent Oversight and Performance Assurance Program, within 60 days of receipt of this letter. If you have any questions, please contact me or Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Sally A. Sieracki
Contracting Officer

SED:CAA

Attachment

cc w/attach:
M. S. Strickland, FHI
R. M. Nichols, FHI
W. H. Preivity, FHI

Department of Energy Richland Operations Office Surveillance Report

Division: Safety & Engineering Division (SED)

Surveillant: Cliff Ashley

Surveillance Number: S-09-SED-FHI-012

Date Completed: April 17, 2009

Contractor: Fluor Hanford, Inc. (FHI)

Facility: Cross Cutting

Title: Hanford Electrical Utilities (EU) Work Control

Guide: OSS 19.2 Electrical Safety; OPS 9.16 Procedure Content and Use

Surveillance Scope:

This surveillance was conducted in response to three recent electrical events (listed below) which reflect a common thread of inadequate communication and coordination between Hanford Electrical Utilities (EU) and affected facilities. The RL Electrical Subject Matter Expert (SME) conducted this surveillance to further evaluate these events and determine if EU adequately planned and coordinated the associated work with the appropriate DOE contractor projects/work control offices.

- March 24, 2009, Electrical Power Outage at 151 KW Substation (AKA A-7 Substation, AKA as 165-K), which resulted in unplanned loss of power to all the 100 Area sites.
 - March 19, 2009, 100-K Project D4 Mobile Office Demolition Hazard (Overhead Electrical Lines), which caused a stop work for this project and critique.
 - March 13, 2009, Electrical Power Outage at 300 Area- B3S4 Main Substation, which resulted in unplanned loss of power at the 300 Area facilities operated by Washington Closure Hanford LLC and the Pacific Northwest National Laboratory.
-

Surveillance Summary:

The surveillant performed the following activities in order to evaluate the EU work control process.

- Reviewed HNF-PRO-12115 Rev. 16 Work Management;
- Reviewed UE-A-22.01, Electrical Utilities System Dispatcher Duties;
- Reviewed DI-Y4000.19, Electrical Utilities Work Management;
- Reviewed FHI/CHPRC Administrative Interface Agreement (CHPRC-0800090)
- Interviewed EU management and staff
- Interviewed FHI Management Assessment Team members who were conducting a similar assessment of EU during the surveillance period.

In summary, the FHI EU planning and coordination of electrical work that affects other DOE projects and facilities requires improvement. During an April 1, 2009, surveillance interview that reviewed the details of three electrical events that involved EU (March 13, 19, and 24, 2009), EU management and staff recognized the need to improve their work control and coordination with others.

EU management initiated a FHI long term corrective action to update detailed interface agreements with all DOE Hanford contractors. As proposed by EU, these updated agreements would establish primary points of contact for each DOE contractor facility and/or project work control office. The primary point of contact (POC) for each facility will identify who is authorized to submit work requests, who is the SME, who is authorized to release work packages, and who will identify safety systems that could be affected by a electrical power loss requiring an Unreviewed Safety Question (USQ) evaluation. EU is also determining if new or existing procedures need to be developed or revised to address the issues outlined within this report.

The surveillant determined that the EU work control process and coordination with others needs improvement, and if left un-corrected could result in the work being performed without full compliance to applicable safety requirements. This could result in serious consequences to facilities or personnel. Interim and long term corrective actions have been identified and are in progress. The surveillance identified one concern, five findings and one observation.

- **S-09-SED-FHI-012-C01:** FHI Management has not ensured Hanford EU was adequately informed of or complied with requirements established by DOE, FHI, and a CHPRC Administrative Agreement.
- **S-09-SED-FHI-012-F01:** FHI has not adequately incorporated the requirements of Richland Requirements Document (RRD) 005 and interface agreements into procedural documents for the conduct of work.
- **S-09-SED-FHI-012-F02:** Hanford EU did not comply with FHI/CHPRC Administrative Interface Agreement (CHPRC-0800090) regarding EU work that changes the electrical supply system.

- **S-09-SED-FHI-012-F03:** Hanford EU did not always comply with their FHI Work Management procedures that outline the basic Integrated Safety Management System (ISMS) work management process.
- **S-09-SED-FHI-012-F04:** Hanford EU did not comply with RL and FHI requirements and restrictions for EU work on non-EU owned electrical lines.
- **S-09-SED-FHI-012-F05:** Hanford EU did not include the facility electrical SME in the performance of a field walk down for a work task.
- **S-09-SED-FHI-012-O01:** EU management and staff concluded that a circuit breaker trip at 151-KW substation could not be explained. EU is currently reviewing and testing all possible causes.

Surveillance Results:

Concern: S-09-SED-FHI-012-C01

FHI Management has not ensured Hanford EU was adequately informed of or complied with requirements established by DOE, FHI, and a CHPRC Administrative Agreement.

Discussion:

This concern represents a programmatic breakdown of FHI's work and requirements management processes to ensure EU work is performed consistent with FHI administrative controls (requirement documents and procedures), DOE contract requirements, and agreements with external entities. The breakdown of FHI's work and requirements management processes calls into question whether other contractual requirements (DOE directives, interface agreements, etc.) are being complied with. This concern is supported by findings F01 through F05.

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

Finding: S-09-SED-FHI-012-F01

FHI has not adequately incorporated the requirements of RRD 005 and interface agreements into procedural documents for the conduct of work.

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:

During the April 1, 2009, meeting with EU, it appeared EU was not cognizant of the requirements of RRD 005, specifically section D.5, which is included in the FHI contract. Section D.5 requirements are clearly applicable to FHI's scope of work.

Further review of EU procedures/desk instructions (UE-A-22.01 and DI-Y4000.19, listed in the surveillance summary), caused the surveillant to conclude that RRD 005 requirements and Interface Agreement (CHPRC-0800090) requirements were not adequately incorporated.

The surveillant noted that FHI management had failed to notify EU management and staff of this interface agreement requirement. In addition, FHI management had failed to communicate appropriate interface agreement requirements to Water Utilities.

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

Finding: S-09-SED-FHI-012-F02

Hanford EU did not comply with FHI/CHPRC Administrative Interface Agreement (CHPRC-0800090) regarding EU work that changes the site electrical supply system.

Requirement:

CHPRC-0800090, Attachment 1, Administrative Interface Agreement for Nuclear Safety Protocols between Project Hanford Management Contract (PHMC) and CH2M HILL Plateau Remediation Company (CHPRC), effective date October 1, 2008. Section 5.0 PHMC Responsibilities, Paragraph 7 states, "Ensure changes in the site electrical supply system, including outages, are submitted to CHPRC for evaluation in the USQ process. Notify Facility POC and CHPRC NS Manager with advance notice of change or outage for proper evaluation."

Discussion:

Contrary to the cited requirement, Hanford EU failed to adequately notify the appropriate CHPRC project/work control office (Facility POC) when EU changed the electrical power supply at 100-K D4 Mobile Office Demolition Site on March 19, 2009, and 151-KW Substation on March 24, 2009.

A CHPRC critique was held March 24, to discuss the March 19, event, and a report was issued March 31, documenting "EU failed to ensure that notification of the 105-KW Shift Operations Manger (SOM) and formal work release occurred." From this critique it was apparent CHPRC had the expectation that the cited requirement was applicable, and determined that it was not complied with. Further, the requirement clearly requires

notification of the facility POC. During the April 1, surveillance interview with EU, it appeared EU had not adequately addressed this issue.

An unplanned power outage event at each of the substations, and the unauthorized work at the D4 site, caused two occurrence reports to be issued. In addition to disrupting CHPRC project operations, the power outages also disrupted operations for Washington Closure Hanford and Pacific Northwest National Laboratory.

During the surveillance period, EU management initiated an FHI long term corrective action to update all DOE Hanford contractor interface agreements such that appropriate points of contact are clearly identified and are adequately contracted so that they can evaluate any proposed changes to the electrical power supply system before this work is performed.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-012-F03

Hanford EU did not always comply with their FHI Work Management procedures that outline the basic Integrated Safety Management System (ISMS) work management process.

Requirement(s):

DI-Y4000.19, Rev. 0, Electrical Utilities Desk Instruction-Work Management, Section 3.2 Hazard Analysis, paragraph 3.2.1 states in part, "All Electrical Utilities work activities shall be analyzed for potential risks, hazards, and complexity to determine the appropriate graded approach to planning." Paragraph 3.2.2 states, "A team approach to planning shall be used to identify hazards, specify controls, perform applicable job walk downs, and provide feedback for process improvements."

HNF-PRO-12115, Rev. 16, Section 5.1 states, "At the highest level, the work management process can be broken down into eight discrete functions. These eight functions directly implement the ISMS Core Functions into the PHMC Work Management Process." Section 5.2.2 Validate Work states in part, "The Validate Work function evaluates requests to determine if they are necessary and then directs the request into the proper type of Work Document (WD) for planning and performance."

Discussion:

Contrary to the cited requirements, on March 19, 2009 EU performed work at the 100-K Project D4 Mobile Office Demolition site based entirely upon the verbal request of a CHPRC Field Work Supervisor. As a result an energized 480 volt line, owned by CHPRC 100-K Project was removed without adequate implementation of the FHI work management process.

Specifically, the requested work was not adequately validated to determine if it was necessary, and then appropriately planned and analyzed. After this event, CHPRC determined that the isolation of their power line could have been performed by 100-K Project by lockout/tagout of a 480 volt disconnect. Since the requested work was not adequately validated, the planning and scheduling of this work was not adequate.

The team approach to planning was also not adequate as the EU supervisor did not verify that the Field Work Supervisor was authorized by 100-K Project to give EU direction to remove the 480 volt line, nor did the EU supervisor verify that the requested work was covered by a CHPRC work package or Automated Job Hazard Analysis (AJHA).

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

Finding: S-09-SED-FHI-012-F04

Hanford EU did not comply with RL and FHI requirements and restrictions for EU work on non-EU owned electrical lines.

Requirement(s):

RRD 005, Rev. 3, Section D. Electrical Safety Requirements, Paragraph 5. states, "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 (see Notes 1 and 2), work inside Hanford Electrical Utilities (EU) underground vaults, request for outages requiring EU support, or movement of any mechanical equipment over 14 feet high (non-extended height).

- a. Work areas shall be walked down by planners and workers to identify all electrical hazards during work planning.
- b. The facility electrical maintenance or engineering organization or EU shall be involved in planning work included in the scope of this Supplemented Contractor Requirements Document. 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.
- c. If it is possible to de-energize electrical overhead lines without causing a hazard greater than working near (but outside the standoff distance) of these lines, they shall be de-energized prior to performing work. If there are circumstances that preclude de-energizing the line, these reasons shall be documented in the work planning process and approved at the appropriate management level.
- d. Work that is performed near electrical overhead lines that are not de-energized shall be carried out under a two barrier control system, as described in Item 6 below."

HNF-RD-28954, Rev. 2, Equipment Operation near Overhead Electrical Lines, Section 2.0 Requirements, paragraph 3. States in part, "The facility EU will complete an EU Site

Visit Form and determine line type and voltage, and specify clearance requirements. EU can provide standby support for work involving their electrical equipment/electrical lines or as deemed necessary by facility electrical maintenance for work involving their electrical equipment/electrical equipment/electrical lines. EU shall be notified at least 48-hours prior to any work that requires their involvement.”

Discussion:

On March 18, 2009, EU was requested by a CHPRC Field Work Supervisor (FWS) to determine if a power line near MO-907 was energized. When the EU supervisor determined that the line was energized at 480 volts and owned by CHPRC, arrangements were made the next day by the FWS and EU supervisor to disconnect this power line. This work was performed without a 100-K Project work package, AJHA, without adequate notification to the 100-K Project Work Control Office, and without any participation by the 100-K electrical maintenance organization.

The above is contrary to the cited requirements based upon the following facts:

- Work area was not adequately walked down by appropriate planners and workers.
- EU did not adequately document their field walkdown. and involve facility electrical maintenance who had jurisdiction of the power line that was removed.
- EU performed non-emergency work without first requiring CHPRC to notify them at least 48-hours prior to any work that requires their involvement.
- EU removed an energized 480 volt power line, without first having this line de-energized by its 480 volt disconnect or receiving appropriate management approval not to de-energize.
- The removal of the 100-K Project owned energized 480 volts power line was not carried out under a two barrier control system.

Of particular concern is the failure to determine whether the line could be de-energized prior to performing work, and obtaining appropriate management approvals if the line could not be de-energized. This is a core expectation of the RRD.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-012-F05

Hanford EU did not include the facility electrical SME in the performance of a field walk down for a work task.

Requirement(s):

HNF-PRO-12115, Rev. 16, Work Management, Section 5.2.3., Step 4. states in part, “Perform a field walk down of the work task to be performed.” Paragraph a. states, “Include the Field work Supervisor (FWS), SMEs, and workers as appropriate in the walk down.”

HNF-RD-28954, Rev. 2, Equipment Operation near Overhead Electrical Lines, Section 2.0 Requirements, paragraph 5. States in part, "Prior to initiation of work included in the scope of this RD, all work scope and applicable areas are to be evaluated during the planning process thorough work site walk downs to identify potential hazards."

Discussion:

Contrary to the cited requirements, on March 18, 2009, EU performed a walk down at the 100-K Project D4 Mobile Office Demolition site, without the assistance of the 100-K Project electrical subject matter expert. As a result, an energized 480 volt line was removed without utilizing a more appropriate electrical hazard isolation point (480 volt electrical disconnect).

A CHPRC critique was held March 24, and report issued March 31, which recommended "Electrical Utilities should conduct a further review of the error made in determination of the power source supplying this overhead line. An incorrect assumption was made in place of a thorough field walk-down." During the April 1, surveillance interview with EU, it did not appear EU had adequately addressed this issue.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-SED-FHI-012-001

EU management and staff concluded that a circuit breaker trip at 151-KW substation could not be explained. EU is currently reviewing and testing all possible causes.

Discussion:

On March 24, 2009, an electrical power outage occurred at 151-KW Substation (A-7 Substation). The EU scope of work for this job was to do North American Electric Reliability Corporation (NERC) required testing on DC circuits and lockout relay maintenance at the A-7 Substation.

In summary, EU successfully completed DC circuit tests on Bus 1 at the A-7 Substation. EU had just completed maintenance on lockout relay 86TB1, when circuit breaker A376 on Bus 2 tripped. There was no EU relay tech activity going on at the time of the trip. EU determined that the DC control circuit to A376 caused this breaker to trip, as there were targets on the 86TB2 lockout relay and 62BFR-74 (breaker failure relay) for the A374 (bus tie) breaker; however, EU could not determine exactly what caused the 62BFR-74 to trip.

According to the DC circuit drawings for A376, this breaker could only be tripped when a 62BFR-74 timer circuit timed out and either a "fault circuit" was triggered or a breaker status contact on A374 (tie breaker) had a false (closed) signal when in fact this tie

breaker was open. After the incident EU determined that the status relay to A374 was not stuck closed and was fully operational. EU attempted to recreate this trip, but all attempts to do so failed. EU also repeated the trip checks associated with 62BFR-74 relay with expected results for proper operation, and bench tested 62BFR-74 with results within specifications.

Since the cause of the 62BFR-74 operation could not be determined, the cause could be improper wiring, the relay may have been faulty, or it may have been caused by some non-repeatable transient. The other possibility is that one of the EU workers used a radio or cell phone in the area which might have caused this trip. Currently EU is planning to conduct tests on the DC trip circuit and control relay to determine if they are sensitive to radio or cell phone use.

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

Contractor Self-Assessment:

During the surveillance period a FHI management assessment was initiated April 13, and completed April 27. The management assessment had a similar scope of review as this surveillance, and appeared to be adequately managed with similar issues noted by the assessment team; however, these issues were reported only as opportunities for improvement.

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

Management Debriefed:

Robert Nichols, FHI
Bill Preivity, FHI
Scott Baker, FHI
Mike Hache, FHI



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

09-MGR-0046

JUN 12 2008

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL 14655 - TRANSMITTAL OF SURVEILLANCE REPORT
S-09-SCO-WCH-ECP-0001

Enclosed is the U.S. Department of Energy, Richland Operations Office, Office of Special Concerns (SCO) surveillance report of the Washington Closure Hanford (WCH) Employee Concerns Program (ECP). The purpose of the surveillance was to evaluate and verify that WCH 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 program is operating in a compliant manner to CRD 442.1A, Supplemented Rev 1. There were no Findings and one Observation was identified as part of this surveillance.

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

Sincerely,

Andrew H. Wirkkala
Contracting Officer

SCO:BAL

Enclosure

cc w/encl:
D. Hurshman, WCH

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

Division: Office of Special Concerns (SCO)

Surveillant: Bonnie A. Lazor, SCO

Surveillance Number: S-09-SCO-WCH-ECP-0001

Date Completed: May 29, 2009

Contractor: Washington Closure Hanford (WCH)

Facility: 2620 Fermi Avenue, Richland, WA 99354

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

Guide: DOE CRD 442.1A, Supplemented Rev 1

Surveillance Scope:

The purpose of this surveillance is to verify that the contractor WCH, ECP is properly implemented.

1. What is the WCH ECP span of control for concern intake?
 2. How are concerns objectively and independently managed?
 3. How does WCH ECP communicate/report cases to management?
 4. Has the WCH ECP database been changed or enhanced?
 5. How are referred or transferred CAs managed?
 6. How does the ECP procedure manage CAs?
 7. What is the corrective action (CA) feedback process?
 8. What is the concern closure process and how is information relayed to the concerned individual (CI)?
 9. How is confidentiality of the CI maintained?
 10. How are lessons learned managed?
-

Surveillance Summary:

The surveillance was conducted in part by interviewing the WCH Coordinator on May 20, 2009, and WCH Manager on May 26, 2009. The surveillance also included the review of case files, referral responses, self-assessments, procedures, forms, performance

metrics, and organizational charts. WCH ECP Procedure, BSC-1-12.1 was effective on August 24, 2007. During October 1, 2008, to May 20, 2009, WCH ECP received 12 concerns.

Surveillance Results:

This surveillance established through interviews and document reviews that the WCH ECP is operating in a compliant manner and meeting the needs of employees to provide products and services as required by the DOE Order and regulations; and Contract Requirements Document (CRD). The WCH ECP Manager (ECPM) has established an effective, viable, service-related program that proactively initiates process improvement, ensures CA implementation, and reports directly to the WCH Project Manager/President. The review identified No Findings and One Observation.

The WCH ECP Annual Self-Assessments dated September 26, 2007, and September 29, 2008, were provided and reviewed. The 2007 WCH ECP Self-Assessment recommendations were contemporaneously implemented. The 2008 WCH ECP Self-Assessment found that cases were thoroughly investigated, timely, and well documented in accordance with requirements documents.

The Surveillant observed the following:

1. The span of control for the WCH ECP is optimal. WCH ECP retains responsibility for all concern intake, investigations, recommended CAs, and process decisions. Occasionally, concerns may originate through other sources or programs (e.g., Human Resources or General Counsel); however, only the ECPM and ECP Coordinator (ECPC) conduct concern intake and employ the ECP process.
2. WCH ECP concerns are objectively and independently managed by the ECPM and ECPC as evidenced by: never delegating the ECP span of control, retaining and guarding CI/originator confidentiality, conducting concern intake and investigations, involving second level supervisors to guard against CI/ originator retaliation, and reporting only ECP case numbers to the WCH President and/or Senior Management.
3. Depending on the nature and level of the concern, safety concerns are investigated in accordance with time-established requirements and sensitive issues are communicated and/or reported to the WCH President, General Counsel, or Public Relations, if necessary. Although the nature of the concern may be communicated, the identity of the CI/originator is kept confidential. Organizationally, only the number of ECP cases are reflected in the monthly WCH Performance Metrics Report.
4. No changes or enhancements have been made to the WCH ECP database.

5. The WCH ECP implements WCH ECP Procedure BSC-1-12.1, 6.3.8 involving recommended CA with the appropriate management authorized to implement the recommended action(s). Based on confidentiality, all ECP CAs (whether referred or transferred) are managed, tracked and tracked in the ECP database. Additionally, ECP CAs are thoroughly documented in the respective ECP case file and closures are verified.
6. Upon agreement of a CA, the CAs are normally completed within 30 days and the respective ECP case is not closed until all CAs have been completed or implemented. Based on confidentiality, only ECP programmatic CAs are entered and tracked into the WCH Corrective Action Management System (CAMS). The WCH ECP had no open CAs in CAMS at the time of this surveillance.
7. The WCH ECP CA feedback process is an informal, verbal process. The CAs are communicated to the CI/originator either by telephone or in a face-to-face meeting with either the ECPM or ECPC. Although written reports are offered, typically written reports are not requested. All meetings, discussions, events, and outcomes with the CI/originator are thoroughly documented in the case file.
8. Throughout the concern process, the CI/originator is kept verbally appraised by either the ECPM or ECPC, as necessary. The closure of a case is discussed with the CI/originator either by telephone or in a face-to-face meeting with either the ECPM or ECPC. With the exception of specific investigation details and other confidentiality requirements, all issues, findings, and CAs are discussed with the CI/originator. Should a CI/originator request a written report, a WCH Notice of Employee Concern Closure Report is provided to them.
9. The WCH ECP realizes that confidentiality is essential to establishing program trust with employees. A review of ECP case files revealed that all associated case documents are maintained in the respective case file and each individual case file is marked "Confidential." Individual case file information is not shared with management. Case files are not removed from the ECP office(s) and are secured in a fire proof, file cabinet with limited access. To further maintain confidentiality, all ECP CAs (whether referred or transferred) are managed and tracked in the ECP database. Additionally, organizational reporting consists of monthly performance metrics that reflect only the number of ECP cases and types/nature of concerns and respective program areas are not shared with management.
10. The WCH ECP complies with WCH ECP Procedure BSC-1-12.1, 6.5.2 by reviewing all cases and/or completed investigations for potential inclusion in the WCH Lessons Learned process. Past potential considerations for inclusions were safety and health related which were initially included by other programs. Additionally, all lessons learned and trends are tracked and maintained in the ECP database; and communicated to senior management, when necessary.

Observation SA-09-SCO-ECP-001:

The WCH ECP does not have a direct, dedicated fax machine.

Discussion:

Currently, the WCH ECP receives concerns via the WCH President's fax machine. Although it is a secure, dedicated machine, in the interest of process improvement to further facilitate confidentiality and independence.

RL ECP Closure Required
Stan O. Branch, MGR

YES [] NO [X]

Documents Reviewed:

WCH Employee Concerns Program Procedure (BSC-1-12.1) dated August 24, 2007;

WCH Notice of Employee Concern (WCH-ECP-001) dated April, 23, 2007;

WCH Notice of Employee Concern Closure Report (WCH-ECP-002) dated September 1, 2006;

WCH Monthly Performance Metrics Report dated January 16, 2009;

WCH ECP Annual Self-assessment Reports dated September 24, 2008, and September 25, 2007;

WCH ECP Information Release Authorization Form;

WCH ECP Organizational Chart dated May 5, 2009;

WCH Organizational Chart dated May 18, 2009; and

Zero Tolerance for Retaliation, PM-HR-15, dated January 15, 2007.

Management Debriefed:

J. Ward, MGR
M. Finan, PRO
S. Branch, SCO
D. Hurshman, WCH
C. Spencer, WCH



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

JUN 10 2009

09-SED-0124

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 S-09-SED-PRC-009, BIOLOGICAL CONTROL PROGRAM, WASTE INFORMATION DATA SYSTEM (WIDS), AND NEAR FACILITY ENVIRONMENTAL RADIOLOGICAL MONITORING

The purpose of this letter is to transmit Surveillance Report S-09-SED-PRC-009, Biological Control Program, WIDS, and Near Facility Environmental Radiological Monitoring. The surveillance investigated adverse trends in number and severity of radioactively contaminated tumbleweeds and animal feces identified outside of radiologically posted areas. Additionally, the surveillance was a reactive surveillance investigating worker allegations of improper control of the spread of contamination from biological vectors over several years and inadequate control and monitoring of these areas with spreading contamination.

The effectiveness of the biological control program, WIDS administration, and Near Facility Environmental Radiological Monitoring involves cooperative efforts of multiple contractors and DOE operations offices. The surveillance is being issued to each contractor. Corrective actions will also require cooperative efforts between the contractors. The surveillance resulted in one concern, seven findings and one observation. Due to the significance of the issues identified, RL requests that CHPRC submit a Corrective Action Plan for the concern and all findings within 60 days of receipt of this letter. Please note that RL closure authority is requested for the concern and all findings and observations.

If you have any questions, please contact me or Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script that reads "Jan Osso".

Jan Osso
Contracting Officer

SED:BMP

Attachment

cc w/attach:

M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillant: J. DeMers and B. Pangborn

Surveillance Number: S-09-SED-PRC-009

Date Completed: April 3, 2009

Contractors: Fluor Hanford Inc. (FHI), CH2M HILL Plateau Remediation Company (CHPRC), Washington Closure Hanford LLC (WCH), Washington River Protection Solutions, LLC (WRPS)

Facility: Cross-cutting

Title: Biological Control Program, Waste Information Data System (WIDS), and Near Facility Environmental Radiological Monitoring.

Guide: 10 CFR 835 and the Tri-Party Agreement (TPA)

Surveillance Scope:

This surveillance of the biological control program was scheduled in the Integrated Evaluation Plan (IEP) to follow up on data showing adverse trends in numbers and severity of levels of radioactively contaminated tumbleweeds and animal feces identified outside of radiologically posted areas. Additionally, this surveillance was a reactive surveillance investigating worker allegations of improper control of the spread of contamination from biological vectors over several years and inadequate control and monitoring of these areas with spreading contamination. The investigation that was performed identified additional issues with compliance with the TPA in the area of reporting changes to waste sites in WIDS.

Surveillance Summary:

The surveillance team observed expanded radiological areas within the Hanford Site resulting from biological transportation of contamination; reviewed reports, procedures and other documentation; and interviewed personnel.

The surveillance resulted in one concern supported by seven findings and one observation.

- **S-09-SED-PRC-009-C01:** Deficiencies in the process for control of spread of contamination by biological vectors resulted in inadequate control, monitoring and posting of spreads of contamination.
- **S-09-SED-PRC-009-F01:** Ongoing spread of radioactive contamination by biological vectors near Tank Farms operational areas was not appropriately monitored and areas posted.
- **S-09-SED-PRC-009-F02:** Contamination spread at S Farms by rabbits has been ongoing for more than 10 years; the contractors have not identified and controlled the source of contamination spread.
- **S-09-SED-PRC-009-F03:** The required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect changes in the waste management unit status from the geographically expanding contamination spreads.
- **S-09-SED-PRC-009-F04:** Contractors are not in full compliance with TPA-MP-14. Multiple contractors have had the opportunity to incorporate the expanding contaminated areas into WIDS, but have not always done so.
- **S-09-SED-PRC-009-F05:** Self-assessment and independent assessments of the compliance with reporting of changes to WIDS, and the associated management of corrective actions, was less than adequate.
- **S-09-SED-PRC-009-F06:** Flow down of requirements regarding identification of expanding or new WIDS sites into procedures is less than adequate.
- **S-09-SED-PRC-009-F07:** The quarterly Environmental Radiological Survey Summary was found to under-report biological control incidents.
- **S-09-SED-PRC-009-O01:** The Biological Control Program, WIDS program, and Environmental Monitoring Programs require effective coordination and cooperation among all the contractors for effective implementation. This is an inherent weakness. Contracts may need to be strengthened to identify minimum performance expectations and ensure appropriate cooperation among the contractors.

Due to the significance of the deficiencies identified, the contractor is requested to submit a Corrective Action Plan within 60 days of receipt of the surveillance report.

Surveillance Results:

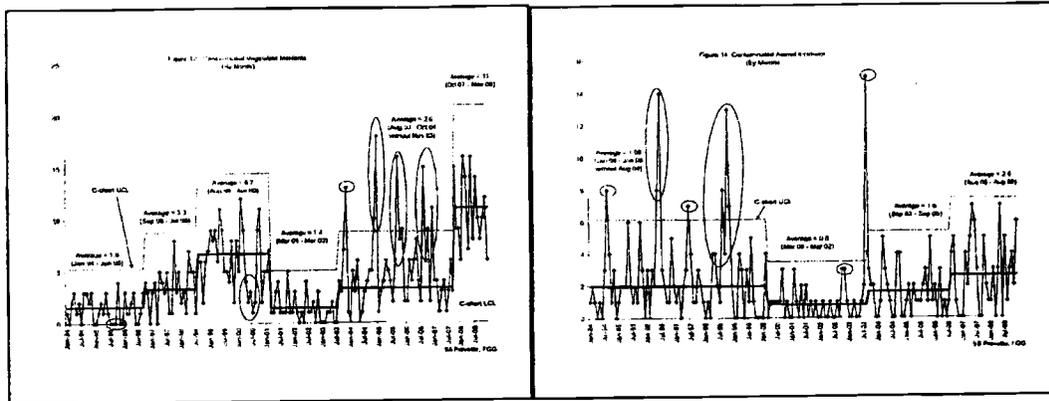
Concern: S-09-SED-PRC-009-C01

Deficiencies in the process for control of spread of contamination by biological vectors resulted in inadequate control, monitoring and posting of spreads of contamination.

Discussion:

Data shows an adverse trend in the spread of contamination by biological vectors.

- Increases in frequency of contaminated vegetation and contaminated animal incidents have occurred.



Trending has also shown an increase in the contamination levels.

- Less than adequate access to areas for herbicide application in 2005 and 2006 and subsequent inadequate removal of these tumbleweeds resulted in large spreads of contamination.

Interviews with personnel from the biological control program and the Tank Farms contractors and reviews of weekly reports from the biological control program from 2005 through Mid-March of 2009 indicated a big factor in the spread of contamination by tumbleweeds was less than adequate application of herbicides within Tank Farms and other areas requiring coordinated access. Unavailability of support for the herbicide applications at Tank Farms and other locations was the major cause of less than adequate application of herbicides. Data showed the following:

From January 2005 to Mid-March 2009, work was canceled on seventy days (36% of cancellations were in 2005, 50% of the cancellations were in 2006, 10% of the cancellations were in 2007, 4% of cancellations were in 2008, and none in 2009 thus far). This shows an improving trend in coordination of the work to control tumbleweeds through application of herbicides.

83% of the cancellations were at Tank Farms.

66% of the cancellations were due to differing priorities (other work taking priority, unavailability of operator support and unrelated operational safety stand downs impacting access); 26% of the cancellations were due to weather (Winds,

rain, ice and snow); and 8% were due to biological control program equipment issues.

Discussions with personnel indicated lack of prompt clean-up of the tumbleweeds within the farms, such as at 241-A, resulted in the spread contamination as the tumbleweeds died, broke off, and spread their contamination as they were blown across the Tank Farms operational areas. These large contaminated areas were not cleaned up at the time of the investigation by DOE.

- Spread of contamination by rabbits near S Tank Farms has been ongoing for more than ten years; the source of contamination has not been adequately identified and stabilized.

WIDS site 200-W-54, Contamination Migration from 241-SX Tank Farm description specifies: "This site is an expanding area of contamination migration. The original unplanned release was defined in 1997. It was a large, irregular shaped Soil Contamination Area (SCA) located on the east side of 241-S/SX Tank Farms. In 1997 it measured approximately 175 meters (575 feet) by 100 meters (330 feet). Another Global Positioning Survey was done in 1998 The posted Soil Contamination Area has been extended approximately 50 meters (165 feet) to the west (up to the Tank Farm fence) and approximately 200 meters (660 feet) in the north-south direction. A site visit in August 2000 found multiple additional radiologically chained and posted areas in this vicinity. There is also one separately posted Contamination Area located north of 241-SY Tank Farm, across a gravel road In 2002, 200-W-54 was consolidated with the 241-S, SX, SY Soil Site (200-W-96), but because of the increasing size of 200-W-54, it was unconsolidated from 200-W-96 in December 2004" This data and a review of the biological control program and occurrence reporting data from 2005 through Mid-March, 2009, shows this problem of expanding contamination from rabbit intrusion has been ongoing for more than 10 years and the source of contamination has not been identified or stabilized. These are two examples of less than adequate implementation of the biological control program.

The review of the biological control program identified major deficiencies in the control, monitoring, and posting of contamination spreads. This concern is supported by seven findings and one observation discussed below.

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

Finding: S-09-SED-PRC-009-F01

Ongoing spread of radioactive contamination by biological vectors near Tank Farms operational areas was not appropriately monitored and areas posted.

Requirement(s):

10 CFR 835.603 specifies "Each access point to radiological areas and radioactive material areas (as defined at 835.2) shall be posted with conspicuous signs bearing the wording provided in this section."

DOE/RL-2002-12, Hanford Radiological Health and Safety Document, Section E specifies the contractual requirements for posting soil contamination areas.

10 CFR 835.401(a) specifies "Monitoring of individuals and areas shall be performed to: (1) Demonstrate compliance with the regulations in this part; (2) Document Radiological Conditions; (3) Detect changes in radiological conditions; (4) Detect the gradual build-up of radioactive materials (5) Verify the effectiveness of engineering."

Discussion:

During the investigation of an employee concern, Radiological Control Technicians (RCTs) at Tank Farms discussed how there were areas near their work site where contamination is known and understood to be located outside the Tank Farm boundaries that was not being properly monitored and posted. Their management had given them specific instructions not to monitor the areas since they "belonged to another contractor." The concern was that no contractor was monitoring and controlling these areas. When asked by DOE, a small area was monitored and the existence of a spread of contamination was confirmed (up to 400,000 dpm/100cm²) including spots near the road and near the portable restroom facility used by Tank Farms workers.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-PRC-009-F02

Contamination spread at S Farms by rabbits has been ongoing for more than 10 years; the contractors have not identified and controlled the source of contamination spread.

Requirement(s):

10 CFR 835.1102(a) specifies "Appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions."

10 CFR 835.1102(b) specifies "Any area in which contamination levels exceed the values specified in appendix D of this part shall be controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable surface contamination levels."

Discussion:

Discussions with the biological control program biologist indicated the spread of contamination by rabbits is likely due to the rabbits consuming an exposed source of radioactive waste for its salt content. The levels of contamination in the rabbits and rabbit feces, the inclusion of alpha radionuclides in the feces (not found in tumbleweeds) and the less likely choice of consuming a mature tumbleweed as a source of food compared to other vegetation available, indicated the source of contamination is not from consumption of tumbleweeds.

It is likely, due to the contamination levels found in the rabbit feces, that the source of exposed radioactive material would be an un-isolated or possibly un-posted contamination area. This source of contamination has been accessible for more than 10 years without adequate radiological surveys being performed to discover its location and stabilize it to prevent the ongoing rabbit intrusion. This is not compliant with the requirements of 10 CFR 835.

The May 4, 2000, Enforcement Guidance Supplement EGS 00-01, titled "Enforcement Position Relative to the Discovery/Control of Legacy Contamination, from R. Keith Christopher, specifies the following (excerpts):

"For the purpose of this EGS, legacy radioactive contamination is generally defined as radioactive contamination resulting from historical operations that is unrelated to current activities. Over the past year, I have received questions from various contractors related to the applicability of 10 CFR 835 to legacy contamination, particularly to its discovery in uncontrolled areas. Specifically, contractors have questioned whether such a discovery represents a noncompliance with 10 CFR 835 that could lead to a potential enforcement action. The general view advanced by contractors with whom I have communicated is that since the contamination is "legacy" and was spread during a previous contractor's activities, the discovery falls outside the scope of 10 CFR 835 and does not represent a noncompliance or potential enforcement situation. I have also noted a mistaken perception among several contractors that as long as legacy contamination remains undiscovered, it creates a defense to enforcement action. This perception is of particular concern, since it acts as a disincentive to implementing proactive and effective survey programs. As discussed below, enforcement discretion will only be applied in those instances where effective survey programs are in place."

"The concept of legacy or pre-existing contamination is neither defined nor discussed in 10 CFR 835 (both original and amended versions). No exclusions for pre-existing conditions (including legacy contamination) are contained in 10 CFR 835, Subpart A."

"Consequently, the identification of any radioactive surface contamination (legacy or otherwise) above the applicable levels contained in 10 CFR 835, Appendix D, in an un-posted and uncontrolled area typically represents a non-compliance with 10 CFR 835 requirements."

“In recognition of the specific circumstances surrounding legacy contamination discovery events, EH-Enforcement does not typically plan to pursue enforcement for non-compliances identified in association with such. The application of this enforcement discretion, however, would be subject to all of the following conditions:

- An effective radiological survey program is in place and functioning.
- Appropriate and timely corrective actions (such as posting, effective area control, decontamination, etc.) are taken upon identification of the contamination.
- It is unreasonable to expect the contamination to have been identified earlier, either through implementation of the radiological survey program, the review of readily available historical information, or the prudent response to previous contamination incidents.”

The spread of contamination by rabbits near S Farms has been ongoing for more than ten years, and less than adequate radiological surveys and inadequate corrective actions have been taken to identify and stabilize the source of radioactive material being consumed by the rabbit population in the area.

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

Finding: S-09-SED-PRC-009-F03

The required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect changes in the waste management unit status from the geographically expanding contamination spreads.

Requirement(s):

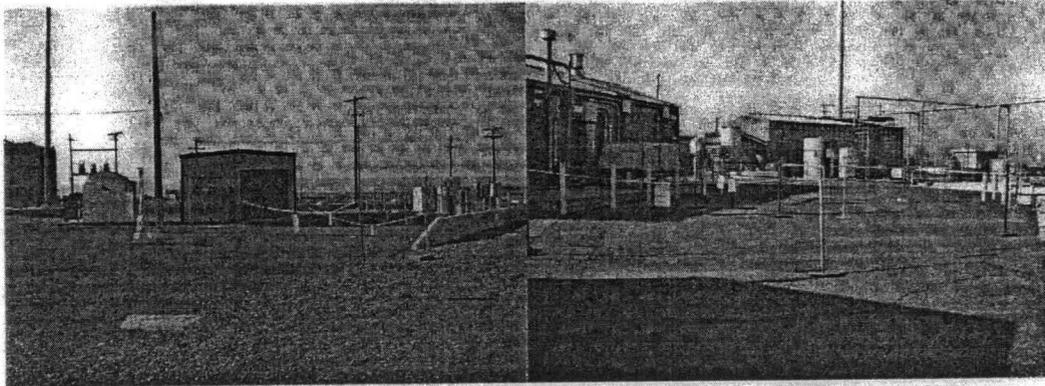
DOE/RL-89-10, Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Action Plan, Section 3.5 specifies “The Waste Information Data System (WIDS) is the electronic database of waste site information for the Hanford Site. The WIDS identifies all waste management units on the Hanford Site, and describes the current status of each unit....The system is maintained by the DOE in accordance with the WIDS change control system, which documents and traces all additions, deletions and/or other changes dealing with the status of the waste management units.... A waste management report... shall be generated annually by the DOE in January of each year.... This report shall reflect all changes made in waste management unit status during the previous year.”

Discussion:

The surveillants observed various areas on the Hanford Site that were posted contamination areas (CA) and soil contamination areas (SCA) and compared their locations with the current map of the designated WIDS Sites. Many of these areas were not identified as a WIDS Site on the map. Discussion with Tank Farms workers

indicated these areas have been expanding over several years due to inadequate control of spread of contamination by biological vectors, but have not all been incorporated into WIDS and thus had not been assigned to a contractor for control and clean-up. Some of the areas have been put into the WRPS monitoring program due to the perseverance of the WRPS (Tank Farms Operations Contractor [TOC]) RCTs.

Examples of these areas are shown below:



SY Farm

241-A

There are many more areas than shown above where the spread of contamination has occurred and has not been incorporated through changes to the WIDS. As a result, the required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect all the changes in the waste management unit status from the geographically expanding contamination spreads. This does not meet the intent of the requirement to submit an annual update.

Discussions with the CHPRC WIDS Database team indicated an investigation of the situation was made after DOE identified the issue. The investigation indicated 38 radiological areas near Tank Farms were identified for evaluation to go into WIDS. Some of the areas should have been decontaminated promptly vice being made into a WIDS site (e.g., surface contamination from tumbleweed fragments on concrete surface), some should be added to an existing WIDS site, and some are need to be made into new WIDS sites. The investigation confirmed the DOE issue. The discussion with RL also indicated this issue of a backlog of radiological areas not submitted for evaluation to go into WIDS comes up about every five years, indicating the processes in place to update WIDS annually have not been effective.

Since DOE uses WIDS identifiers to assign responsible contractors in the contracts, this has left a hole in the system and has resulted in confusion as to the ownership for monitoring and control of some of these areas. This confusion resulted in unmonitored

and un-posted contamination areas where the continued spread of contamination was not being properly monitored or controlled (See Finding S-09-SED-FH1-008-F01).

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

Finding: S-09-SED-PRC-009-F04

Contractors are not in full compliance with TPA-MP-14; multiple contractors have had the opportunity to incorporate the expanding contaminated areas into WIDS, but have not always done so.

Requirements:

RL-TPA-90-0001, TPA-MP-14, Section 3.1, All Hanford Site Contractors and Personnel, specifies "The DOE shall require all Hanford Site contractors to notify the WIDS Administrator concerning new potential WIDS sites and new information concerning existing WIDS sites."

RL-TPA-90-0001, TPA-MP-14, Section 5.1, Identification of a New WIDS Site or New Information, specifies "Anyone that has discovered a potential new WIDS site or has discovered new information about an existing WIDS site should submit the information to the WIDS administrator."

Discussion:

Various contractors have had the opportunity to report these areas of expanding contamination as they have been identified and posted for inclusion in the WIDS system (e.g., FHI with input from the biological control program personnel and/or environmental monitoring program, WRPS with input from the WRPS radiological control technicians...), but have often failed to do so. As stated in the finding above, there are significant discrepancies between posted areas and WIDS information.

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

Finding: S-09-SED-PRC-009-F05

Self-assessment and independent assessments of the compliance with reporting of changes to WIDS, and the associated management of corrective actions, was less than adequate.

Requirement(s):

10 CFR 830.122 Quality assurance criteria, Criterion 9, Assessment/Management Assessment specifies "Ensure managers assess their management processes and identify

and correct problems that hinder the organization from achieving its objectives.”
Criterion 10, Assessment/Independent Assessment, specifies “(1) Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. (2) Establish sufficient authority, and freedom from line management, for the group performing independent assessments.”

Discussion:

Requests for contractor self-assessments in the area of WIDS reporting were made. No contractor was able to demonstrate self-assessment of their implementation of WIDS reporting.

The fact that these areas have been building for years without all being incorporated into WIDS indicates less than adequate oversight.

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

Finding: S-09-SED-PRC-009-F06

Flow down of requirements regarding identification of expanding or new WIDS sites into procedures is less than adequate.

Requirement(s):

10 CFR 830.122 Quality Assurance Criteria, (e) Criterion 5 Performance/Work Processes, specifies “(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.”

RL-TPA-90-0001, TPA-MP-14, Section 5.1, Identification of a New WIDS Site or New Information, specifies “Anyone that has discovered a potential new WIDS site or has discovered new information about an existing WIDS site should submit the information to the WIDS administrator.”

Discussion:

A review of HNF-RD-39470 “Integrated Biological Control Program” indicated the requirement for notifying the WIDS administrator when a new waste site is discovered or changes to an existing site are discovered has not been flowed down to this document. Discussions with the Biological Control Program Biologist indicated none of the biological control program procedures have incorporated this requirement. The Biological Control Program is one of several ways that new or changes to an existing waste site are identified. Discussions with the Biological Control Program biologist indicated that only within the past few months did information on discovery of spread of

contamination get forwarded to the WIDS Administrator. This was verified through a review of WIDS site 200-W-54, which had no information on the spreads of

contamination documented in ORPS reports and in biological control program records for many years until a recent 2009 entry was made.

Flow down of requirements into the working procedures is necessary to ensure compliance with requirements. Procedures provide the triggers to implement the requirements. Based on the ineffectiveness of getting the spreads of contamination documented into WIDS in a timely manner, it is likely there are other deficiencies in the flow down of these requirements into procedures that would affect other aspects of WIDS management.

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

Finding: S-09-SED-PRC-009-F07

The quarterly Environmental Radiological Survey Summary was found to under-report biological control incidents.

Requirement(s):

10 CFR 830.122 (c)(4) states "Review item characteristics, process implementation and other quality-related information to identify items, services, and processes needing improvement."

Discussion:

The surveillant reviewed HNF-SP-0665, Revision 72, Quarterly Environmental Radiological Survey Summary, First Quarter 2009, 100, 200, 300, and 600 Areas.

The data displayed in Table 1, Contamination Incidents Calendar Year 2009, was incomplete. There were no incidents identified through the Tank Farm Operations Contractor Problem Evaluation Request (PER) system. DOE had observed RCTs guarding some contaminated rabbit pellets in early February (documented in WRPS-PER-2009-0200 per discussions with the radiological control supervisor at Tank Farms). This incident was not in the quarterly report. Other PERs in the possession of DOE showing spread of contamination also not documented include WRPS-PER-2009-0251 (WIDS 600-269 2/13/2009), WRPS-PER-2009-0265 (5 spots 2/17/2009), WRPS-PER-2009-2092 (tumbleweed fragments C farm 2/19/2009). The process for obtaining data from the Tank Farm contractor for inclusion in the Quarterly Environmental Radiological Survey Summary was less than adequate. Discussions with the Near Facility Environmental Monitoring Program manager indicated there is not a formal written agreement.

Other comments on the report:

- Although CHPRC did not complete 18 assigned scheduled surveys, the report does not address compensatory or corrective actions.
- The report specifies "No new waste sites were identified for inclusion into the Waste identification Data System." This is misleading since there were expanding areas of contamination that were posted as either a contamination area or soil contamination area (see findings above).

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

Observation: S-09-SED-PRC-009-001

The Biological Control Program, WIDS program, and Environmental Monitoring Programs require effective coordination and cooperation among all the contractors for effective implementation. This is an inherent weakness. Contracts may need to be strengthened to identify minimum performance expectations and ensure appropriate cooperation among the contractors.

Discussion:

- Biological Control Program

Getting Cooperation between contractors is difficult

The process for the biological control program includes the use of multi-contractor interface meetings to discuss contractor needs and issues and the development of contractor administrative interface agreements. The surveillants observed several of these meetings. Inconsistency in representation at the meetings, differing opinions on contractual requirements, and individuals making commitments for a company without the authority or without fully understanding the company's baseline costs, were just some of the problems observed. The changes in contracts made these meetings particularly difficult as new contractors were getting acquainted with their responsibilities and the differences in levels of funding from prior years impacted levels of baseline services and willingness to commit resources.

In prior years when FHI had both the biological control program and remedial action work in the central plateau, the contractor administrative interface agreement for the biological control program made greater promises of service than were practical based on actual funding for the biological control program. As an example, the prior interface agreement committed FHI to responsibility for monitoring and control of contamination outside the Tank Farm fence. While small spreads of contamination cleanup were within the budget, control of actively spreading contamination over large areas and large remediation projects was not. The problem with one contractor committing to do more than it is funded for is the inadvertent removal of responsibility of the owner of the waste

site for keeping it under control and performing appropriate monitoring to verify the adequacy of its controls. Re-educating the owners of the waste sites of their regulatory responsibilities had to be done through formal direction by DOE. Greater oversight is needed to ensure these contractor interface agreements are consistent with the baseline costs for services identified in the contracts and do not imply the service provider is assuming another contractor's regulatory responsibility.

The interface agreement for the biological control program took more than half a year to negotiate. It was approved April 7, 2009.

DOE intervention in inter-contract problems needed to be sooner rather than later

The problem of lack of cooperation between the Tank Farms contractor and the biological control program contractor occurred for two years (2005 and 2006) and was not resolved until overwhelming issues of tumbleweeds within Tank Farms resulted in Tank Farms management changing its priorities of getting access into the farms by personnel applying the herbicide. This lack of control has resulted in future costs to remediate the large areas of spread of contamination.

Recommendations by the biological control program manager are informal

Remedial action of an area to prevent spread of contamination by biological vectors is the responsibility of the owner of the waste site. Recommendations made informally can fall on deaf ears, not reaching the right level of management attention. The biological control program manager should consider providing formal recommendations to DOE and the responsible contractor so appropriate funding and priority can be made for implementing remedial actions.

- The WIDS system

The WIDS process is a reactive one, requiring input from individuals, for actions to be taken. If it is everyone's responsibility, it becomes nobody's responsibility to report these areas to WIDS. Based on the excessive number of contaminated areas that are not in WIDS and the fact that these conditions have existed for years, there does not appear to be adequate proactive activity in assuring the WIDS sites are accurately identified.

The surveillance team, under a separate report in the operational awareness data base, made recommendations to DOE to strengthen the requirements within TPA-MP-14 and to provide clarification on how spreads of contamination by biological vectors are entered into WIDS.

- The Near Facility Environmental Radiological Monitoring

The near facility environmental radiological monitoring program (separate from the PNNL operated far-field environmental monitoring program), like WIDS, requires input from multiple contractors. The schedule, through multiple contractor agreement is

published by FHI, while the personnel, RCTs, performing the tasks, are from various contractors. The current contractors, FHI, CHPRC, and WCH, have approved the Environmental Monitoring Schedule, HNF-SP-0098, Rev. 20. Completion of the scheduled radiological surveys is required to "provide a level of assurance that the effluent and contamination controls for the various facilities and waste sites are effective" (DOE/RL-91-50).

RCTs not part of the FHI organization expressed concern over the lack of priority given to completion of the quarterly radiological surveys for the environmental monitoring program. Their supervision has been more hesitant than in past contracts to authorize/schedule them to perform this work since it does not support completion of the contractor's project scope of work. An effective mechanism for resolving these jurisdictional issues between contractors and between projects within a single contractor before the scheduled survey is missed does not appear to be implemented.

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

Contractor Self Assessment:

Records indicate the issues of inadequate control of spread of contamination by biological vectors and inadequacies in incorporating sites into WIDS have been identified by radiological control technicians at Tank Farms, through multiple problem evaluation requests (PERs), and by trending of data by the contractor and DOE. However, self-assessments and corrective actions by the contractor were less than adequate.

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

Management Debriefed:

Tom Bratvold, CHPRC
Carl Connell, CHPRC
Christine R. Webb, CHPRC



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

09-SED-0125

JUN 12 2009

Mr. D. G. Ruscitto, President
and Chief Executive Officer
Fluor Hanford, Inc.
Richland, Washington 99352

Dear Mr. Ruscitto:

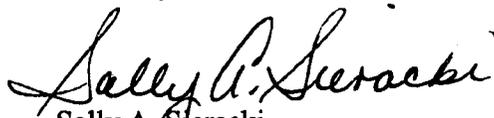
CONTRACT NO. DE-AC06-96RL13200 – TRANSMITTAL OF SURVEILLANCE REPORT S-09-SED-FHI-008, BIOLOGICAL CONTROL PROGRAM, WASTE INFORMATION DATA SYSTEM (WIDS), AND NEAR FACILITY ENVIRONMENTAL RADIOLOGICAL MONITORING

The purpose of this letter is to transmit Surveillance report S-09-SED-FHI-008, Biological Control Program, WIDS, and Near Facility Environmental Radiological Monitoring. The surveillance investigated adverse trends in number and severity of radioactively contaminated tumbleweeds and animal feces identified outside of radiologically posted areas. Additionally, the surveillance was a reactive surveillance investigating worker allegations of improper control of the spread of contamination from biological vectors over several years and inadequate control and monitoring of these areas with spreading contamination.

The effectiveness of the biological control program, WIDS administration, and Near Facility Environmental Radiological Monitoring involves cooperative efforts of multiple contractors and DOE operations offices. The surveillance is being issued to each contractor. Corrective actions will also require cooperative efforts between the contractors. The surveillance resulted in one concern, seven findings and one observation. Due to the significance of the issues identified, RL requests that FHI submit a Corrective Action Plan for the concern and all findings within 60 days of receipt of this letter. Please note that RL closure authority is requested for the concern and all findings and observations.

If you have any questions, please contact me or Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Sally A. Seracki
Contracting Officer

SED:BMP

Attachment

cc w/attach:
H. P. Bolig, FHI
M. S. Strickland, FHI

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillant: J. DeMers and B. Pangborn

Surveillance Number: S-09-SED-FHI-008

Date Completed: April 3, 2009

Contractors: Fluor Hanford Inc. (FHI), CH2M HILL Plateau Remediation Company (CHPRC), Washington Closure Hanford LLC (WCH), Washington River Protection Solutions, LLC (WRPS)

Facility: Cross-cutting

Title: Biological Control Program, Waste Information Data System (WIDS), and Near Facility Environmental Radiological Monitoring.

Guide: 10 CFR 835 and the Tri-Party Agreement (TPA)

Surveillance Scope:

This surveillance of the biological control program was scheduled in the Integrated Evaluation Plan (IEP) to follow up on data showing adverse trends in numbers and severity of levels of radioactively contaminated tumbleweeds and animal feces identified outside of radiologically posted areas. Additionally, this surveillance was a reactive surveillance investigating worker allegations of improper control of the spread of contamination from biological vectors over several years and inadequate control and monitoring of these areas with spreading contamination. The investigation that was performed identified additional issues with compliance with the TPA in the area of reporting changes to waste sites in WIDS.

Surveillance Summary:

The surveillance team observed expanded radiological areas within the Hanford Site resulting from biological transportation of contamination; reviewed reports, procedures and other documentation; and interviewed personnel.

The surveillance resulted in one concern supported by seven findings and one observation.

- **S-09-SED-FHI-008-C01:** Deficiencies in the process for control of spread of contamination by biological vectors resulted in inadequate control, monitoring and posting of spreads of contamination.
- **S-09-SED-FHI-008-F01:** Ongoing spread of radioactive contamination by biological vectors near Tank Farms operational areas was not appropriately monitored and areas posted.
- **S-09-SED-FHI-008-F02:** Contamination spread at S Farms by rabbits has been ongoing for more than 10 years; the contractors have not identified and controlled the source of contamination spread.
- **S-09-SED-FHI-008-F03:** The required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect changes in the waste management unit status from the geographically expanding contamination spreads.
- **S-09-SED-FHI-008-F04:** Contractors are not in full compliance with TPA-MP-14. Multiple contractors have had the opportunity to incorporate the expanding contaminated areas into WIDS, but have not always done so.
- **S-09-SED-FHI-008-F05:** Self-assessment and independent assessments of the compliance with reporting of changes to WIDS, and the associated management of corrective actions, was less than adequate.
- **S-09-SED-FHI-008-F06:** Flow down of requirements regarding identification of expanding or new WIDS sites into procedures is less than adequate.
- **S-09-SED-FHI-008-F07:** The quarterly Environmental Radiological Survey Summary was found to under-report biological control incidents.
- **S-09-SED-FHI-008-O01:** The Biological Control Program, WIDS program, and Environmental Monitoring Programs require effective coordination and cooperation among all the contractors for effective implementation. This is an inherent weakness. Contracts may need to be strengthened to identify minimum performance expectations and ensure appropriate cooperation among the contractors.

Due to the significance of the deficiencies identified, the contractor is requested to submit a Corrective Action Plan within 60 days of receipt of the surveillance report.

Surveillance Results:

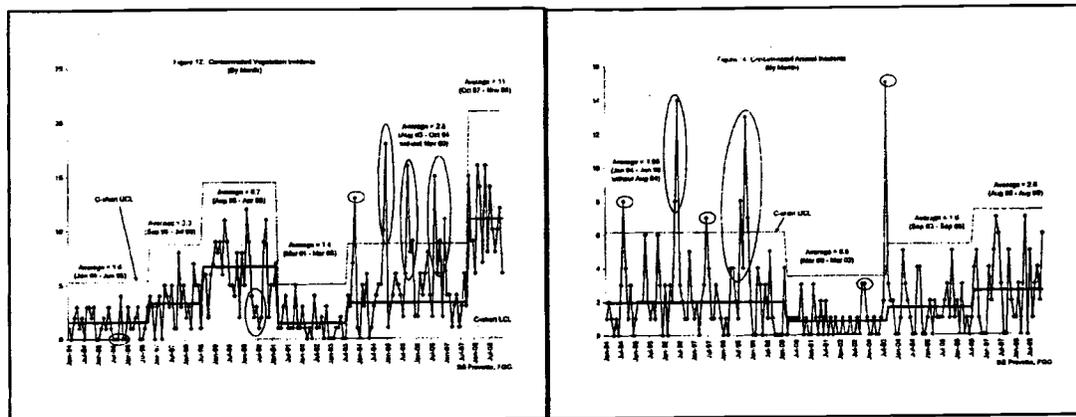
Concern: S-09-SED-FHI-008-C01

Deficiencies in the process for control of spread of contamination by biological vectors resulted in inadequate control, monitoring and posting of spreads of contamination.

Discussion:

Data shows an adverse trend in the spread of contamination by biological vectors.

- Increases in frequency of contaminated vegetation and contaminated animal incidents have occurred.



Trending has also shown an increase in the contamination levels.

- Less than adequate access to areas for herbicide application in 2005 and 2006 and subsequent inadequate removal of these tumbleweeds resulted in large spreads of contamination.

Interviews with personnel from the biological control program and the Tank Farms contractors and reviews of weekly reports from the biological control program from 2005 through Mid-March of 2009 indicated a big factor in the spread of contamination by tumbleweeds was less than adequate application of herbicides within Tank Farms and other areas requiring coordinated access. Unavailability of support for the herbicide applications at Tank Farms and other locations was the major cause of less than adequate application of herbicides. Data showed the following:

From January 2005 to Mid-March 2009, work was canceled on seventy days (36% of cancellations were in 2005, 50% of the cancellations were in 2006, 10% of the cancellations were in 2007, 4% of cancellations were in 2008, and none in 2009 thus far). This shows an improving trend in coordination of the work to control tumbleweeds through application of herbicides.

83% of the cancellations were at Tank Farms.

66% of the cancellations were due to differing priorities (other work taking priority, unavailability of operator support and unrelated operational safety stand downs impacting access); 26% of the cancellations were due to weather (Winds,

rain, ice and snow); and 8% were due to biological control program equipment issues.

Discussions with personnel indicated lack of prompt clean-up of the tumbleweeds within the farms, such as at 241-A, resulted in the spread of contamination as the tumbleweeds died, broke off, and spread their contamination as they were blown across the Tank Farms operational areas. These large contaminated areas were not cleaned up at the time of the investigation by DOE.

- Spread of contamination by rabbits near S Tank Farms has been ongoing for more than ten years; the source of contamination has not been adequately identified and stabilized.

WIDS site 200-W-54, Contamination Migration from 241-SX Tank Farm description specifies: "This site is an expanding area of contamination migration. The original unplanned release was defined in 1997. It was a large, irregular shaped Soil Contamination Area (SCA) located on the east side of 241-S/SX Tank Farms. In 1997 it measured approximately 175 meters (575 feet) by 100 meters (330 feet). Another Global Positioning Survey was done in 1998 The posted Soil Contamination Area has been extended approximately 50 meters (165 feet) to the west (up to the Tank Farm fence) and approximately 200 meters (660 feet) in the north-south direction. A site visit in August 2000 found multiple additional radiologically chained and posted areas in this vicinity. There is also one separately posted Contamination Area located north of 241-SY Tank Farm, across a gravel road In 2002, 200-W-54 was consolidated with the 241-S, SX, SY Soil Site (200-W-96), but because of the increasing size of 200-W-54, it was unconsolidated from 200-W-96 in December 2004" This data and a review of the biological control program and occurrence reporting data from 2005 through Mid-March, 2009, shows this problem of expanding contamination from rabbit intrusion has been ongoing for more than 10 years and the source of contamination has not been identified or stabilized. These are two examples of less than adequate implementation of the biological control program.

The review of the biological control program identified major deficiencies in the control, monitoring, and posting of contamination spreads. This concern is supported by seven findings and one observation discussed below.

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

Finding: S-09-SED-FHI-008-F01

Ongoing spread of radioactive contamination by biological vectors near Tank Farms operational areas was not appropriately monitored and areas posted.

Requirement(s):

10 CFR 835.603 specifies "Each access point to radiological areas and radioactive material areas (as defined at 835.2) shall be posted with conspicuous signs bearing the wording provided in this section."

DOE/RL-2002-12, Hanford Radiological Health and Safety Document, Section E specifies the contractual requirements for posting soil contamination areas.

10 CFR 835.401(a) specifies "Monitoring of individuals and areas shall be performed to: (1) Demonstrate compliance with the regulations in this part; (2) Document Radiological Conditions; (3) Detect changes in radiological conditions; (4) Detect the gradual build-up of radioactive materials (5) Verify the effectiveness of engineering."

Discussion:

During the investigation of an employee concern, Radiological Control Technicians (RCTs) at Tank Farms discussed how there were areas near their work site where contamination is known and understood to be located outside the Tank Farm boundaries that was not being properly monitored and posted. Their management had given them specific instructions not to monitor the areas since they "belonged to another contractor." The concern was that no contractor was monitoring and controlling these areas. When asked by DOE, a small area was monitored and the existence of a spread of contamination was confirmed (up to 400,000 dpm/100cm²) including spots near the road and near the portable restroom facility used by Tank Farms workers.

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

Finding: S-09-SED-FHI-008-F02

Contamination spread at S Farms by rabbits has been ongoing for more than 10 years; the contractors have not identified and controlled the source of contamination spread.

Requirement(s):

10 CFR 835.1102(a) specifies "Appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions."

10 CFR 835.1102(b) specifies "Any area in which contamination levels exceed the values specified in appendix D of this part shall be controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable surface contamination levels."

Discussion:

Discussions with the biological control program biologist indicated the spread of contamination by rabbits is likely due to the rabbits consuming an exposed source of radioactive waste for its salt content. The levels of contamination in the rabbits and rabbit feces, the inclusion of alpha radionuclides in the feces (not found in tumbleweeds) and the less likely choice of consuming a mature tumbleweed as a source of food compared to other vegetation available, indicated the source of contamination is not from consumption of tumbleweeds.

It is likely, due to the contamination levels found in the rabbit feces, that the source of exposed radioactive material would be an un-isolated or possibly un-posted contamination area. This source of contamination has been accessible for more than 10 years without adequate radiological surveys being performed to discover its location and stabilize it to prevent the ongoing rabbit intrusion. This is not compliant with the requirements of 10 CFR 835.

The May 4, 2000, Enforcement Guidance Supplement EGS 00-01, titled "Enforcement Position Relative to the Discovery/Control of Legacy Contamination, from R. Keith Christopher, specifies the following (excepts):

"For the purpose of this EGS, legacy radioactive contamination is generally defined as radioactive contamination resulting from historical operations that is unrelated to current activities. Over the past year, I have received questions from various contractors related to the applicability of 10 CFR 835 to legacy contamination, particularly to its discovery in uncontrolled areas. Specifically, contractors have questioned whether such a discovery represents a noncompliance with 10 CFR 835 that could lead to a potential enforcement action. The general view advanced by contractors with whom I have communicated is that since the contamination is "legacy" and was spread during a previous contractor's activities, the discovery falls outside the scope of 10 CFR 835 and does not represent a noncompliance or potential enforcement situation. I have also noted a mistaken perception among several contractors that as long as legacy contamination remains undiscovered, it creates a defense to enforcement action. This perception is of particular concern, since it acts as a disincentive to implementing proactive and effective survey programs. As discussed below, enforcement discretion will only be applied in those instances where effective survey programs are in place."

"The concept of legacy or pre-existing contamination is neither defined nor discussed in 10 CFR 835 (both original and amended versions). No exclusions for pre-existing conditions (including legacy contamination) are contained in 10 CFR 835, Subpart A."

"Consequently, the identification of any radioactive surface contamination (legacy or otherwise) above the applicable levels contained in 10 CFR 835, Appendix D, in an un-posted and uncontrolled area typically represents a non-compliance with 10 CFR 835 requirements."

“In recognition of the specific circumstances surrounding legacy contamination discovery events, EH-Enforcement does not typically plan to pursue enforcement for non-compliances identified in association with such. The application of this enforcement discretion, however, would be subject to all of the following conditions:

- An effective radiological survey program is in place and functioning.
- Appropriate and timely corrective actions (such as posting, effective area control, decontamination, etc.) are taken upon identification of the contamination.
- It is unreasonable to expect the contamination to have been identified earlier, either through implementation of the radiological survey program, the review of readily available historical information, or the prudent response to previous contamination incidents.”

The spread of contamination by rabbits near S Farms has been ongoing for more than ten years, and less than adequate radiological surveys and inadequate corrective actions have been taken to identify and stabilize the source of radioactive material being consumed by the rabbit population in the area.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-008-F03

The required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect changes in the waste management unit status from the geographically expanding contamination spreads.

Requirement(s):

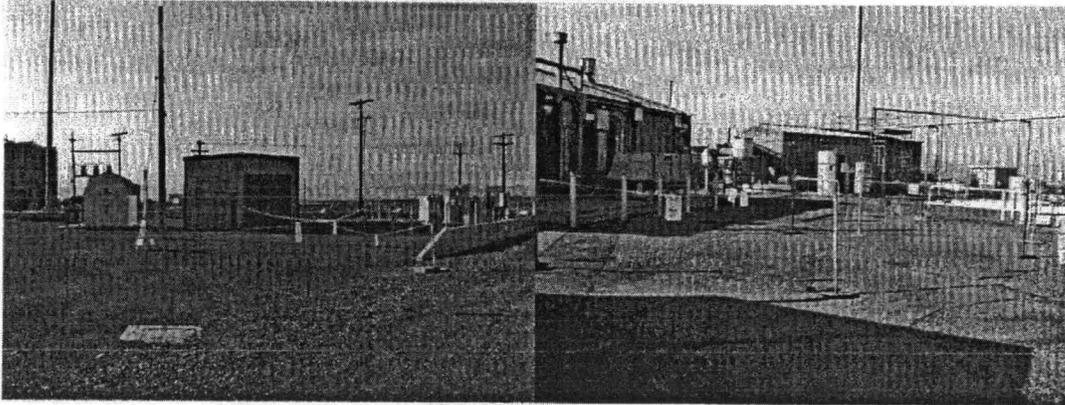
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Discussion:

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Examples of these areas are shown below:



SY Farm

241-A

There are many more areas than shown above where the spread of contamination has occurred and has not been incorporated through changes to the WIDS. As a result, the required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect all the changes in the waste management unit status from the geographically expanding contamination spreads. This does not meet the intent of the requirement to submit an annual update.

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Since DOE uses WIDS identifiers to assign responsible contractors in the contracts, this has left a hole in the system and has resulted in confusion as to the ownership for monitoring and control of some of these areas. This confusion resulted in unmonitored

and un-posted contamination areas where the continued spread of contamination was not being properly monitored or controlled (See Finding S-09-SED-FHI-008-F01).

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-008-F04

Contractors are not in full compliance with TPA-MP-14; multiple contractors have had the opportunity to incorporate the expanding contaminated areas into WIDS, but have not always done so.

Requirements:

RL-TPA-90-0001, TPA-MP-14, Section 3.1, All Hanford Site Contractors and Personnel, specifies "The DOE shall require all Hanford Site contractors to notify the WIDS Administrator concerning new potential WIDS sites and new information concerning existing WIDS sites."

RL-TPA-90-0001, TPA-MP-14, Section 5.1, Identification of a New WIDS Site or New Information, specifies "Anyone that has discovered a potential new WIDS site or has discovered new information about an existing WIDS site should submit the information to the WIDS administrator."

Discussion:

Various contractors have had the opportunity to report these areas of expanding contamination as they have been identified and posted for inclusion in the WIDS system (e.g., FHI with input from the biological control program personnel and/or environmental monitoring program, WRPS with input from the WRPS radiological control technicians...), but have often failed to do so. As stated in the finding above, there are significant discrepancies between posted areas and WIDS information.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-008-F05

Self-assessment and independent assessments of the compliance with reporting of changes to WIDS, and the associated management of corrective actions, was less than adequate.

Requirement(s):

10 CFR 830.122 Quality assurance criteria, Criterion 9, Assessment/Management Assessment specifies "Ensure managers assess their management processes and identify

and correct problems that hinder the organization from achieving its objectives.”
Criterion 10, Assessment/Independent Assessment, specifies “(1) Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. (2) Establish sufficient authority, and freedom from line management, for the group performing independent assessments.”

Discussion:

Requests for contractor self-assessments in the area of WIDS reporting were made. No contractor was able to demonstrate self-assessment of their implementation of WIDS reporting.

The fact that these areas have been building for years without all being incorporated into WIDS indicates less than adequate oversight.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-008-F06

Flow down of requirements regarding identification of expanding or new WIDS sites into procedures is less than adequate.

Requirement(s):

10 CFR 830.122 Quality Assurance Criteria, (e) Criterion 5 Performance/Work Processes, specifies “(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.”

RL-TPA-90-0001, TPA-MP-14, Section 5.1, Identification of a New WIDS Site or New Information, specifies “Anyone that has discovered a potential new WIDS site or has discovered new information about an existing WIDS site should submit the information to the WIDS administrator.”

Discussion:

A review of HNF-RD-39470 “Integrated Biological Control Program” indicated the requirement for notifying the WIDS administrator when a new waste site is discovered or changes to an existing site are discovered has not been flowed down to this document. Discussions with the Biological Control Program Biologist indicated none of the biological control program procedures have incorporated this requirement. The Biological Control Program is one of several ways that new or changes to an existing waste site are identified. Discussions with the Biological Control Program biologist indicated that only within the past few months did information on discovery of spread of contamination get forwarded to the WIDS Administrator. This was verified through a

review of WIDS site 200-W-54, which had no information on the spreads of contamination documented in ORPS reports and in biological control program records for many years until a recent 2009 entry was made.

Flow down of requirements into the working procedures is necessary to ensure compliance with requirements. Procedures provide the triggers to implement the requirements. Based on the ineffectiveness of getting the spreads of contamination documented into WIDS in a timely manner, it is likely there are other deficiencies in the flow down of these requirements into procedures that would affect other aspects of WIDS management.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-FHI-008-F07

The quarterly Environmental Radiological Survey Summary was found to under-report biological control incidents.

Requirement(s):

10 CFR 830.122 (c)(4) states "Review item characteristics, process implementation and other quality-related information to identify items, services, and processes needing improvement."

Discussion:

The surveillant reviewed HNF-SP-0665, Revision 72, Quarterly Environmental Radiological Survey Summary, First Quarter 2009, 100, 200, 300, and 600 Areas.

The data displayed in Table 1, Contamination Incidents Calendar Year 2009, was incomplete. There were no incidents identified through the Tank Farm Operations Contractor Problem Evaluation Request (PER) system. DOE had observed RCTs guarding some contaminated rabbit pellets in early February (documented in WRPS-PER-2009-0200 per discussions with the radiological control supervisor at Tank Farms). This incident was not in the quarterly report. Other PERs in the possession of DOE showing spread of contamination also not documented include WRPS-PER-2009-0251 (WIDS 600-269 2/13/2009), WRPS-PER-2009-0265 (5 spots 2/17/2009), WRPS-PER-2009-2092 (tumbleweed fragments C farm 2/19/2009). The process for obtaining data from the Tank Farm contractor for inclusion in the Quarterly Environmental Radiological Survey Summary was less than adequate. Discussions with the Near Facility Environmental Monitoring Program manager indicated there is not a formal written agreement.

Other comments on the report:

- Although CHPRC did not complete 18 assigned scheduled surveys, the report does not address compensatory or corrective actions.
- The report specifies "No new waste sites were identified for inclusion into the Waste identification Data System." This is misleading since there were expanding areas of contamination that were posted as either a contamination area or soil contamination area (see findings above).

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

Observation: S-09-SED-FHI-008-O01

The Biological Control Program, WIDS program, and Environmental Monitoring Programs require effective coordination and cooperation among all the contractors for effective implementation. This is an inherent weakness. Contracts may need to be strengthened to identify minimum performance expectations and ensure appropriate cooperation among the contractors.

Discussion:

- Biological Control Program

Getting Cooperation between contractors is difficult

The process for the biological control program includes the use of multi-contractor interface meetings to discuss contractor needs and issues and the development of contractor administrative interface agreements. The surveillants observed several of these meetings. Inconsistency in representation at the meetings, differing opinions on contractual requirements, and individuals making commitments for a company without the authority or without fully understanding the company's baseline costs, were just some of the problems observed. The changes in contracts made these meetings particularly difficult as new contractors were getting acquainted with their responsibilities and the differences in levels of funding from prior years impacted levels of baseline services and willingness to commit resources.

In prior years when FHI had both the biological control program and remedial action work in the central plateau, the contractor administrative interface agreement for the biological control program made greater promises of service than were practical based on actual funding for the biological control program. As an example, the prior interface agreement committed FHI to responsibility for monitoring and control of contamination outside the Tank Farm fence. While small spreads of contamination cleanup were within the budget, control of actively spreading contamination over large areas and large remediation projects was not. The problem with one contractor committing to do more than it is funded for is the inadvertent removal of responsibility of the owner of the waste

site for keeping it under control and performing appropriate monitoring to verify the adequacy of its controls. Re-educating the owners of the waste sites of their regulatory responsibilities had to be done through formal direction by DOE. Greater oversight is needed to ensure these contractor interface agreements are consistent with the baseline costs for services identified in the contracts and do not imply the service provider is assuming another contractor's regulatory responsibility.

The interface agreement for the biological control program took more than half a year to negotiate. It was approved April 7, 2009.

DOE intervention in inter-contract problems needed to be sooner rather than later

The problem of lack of cooperation between the Tank Farms contractor and the biological control program contractor occurred for two years (2005 and 2006) and was not resolved until overwhelming issues of tumbleweeds within Tank Farms resulted in Tank Farms management changing its priorities of getting access into the farms by personnel applying the herbicide. This lack of control has resulted in future costs to remediate the large areas of spread of contamination.

Recommendations by the biological control program manager are informal

Remedial action of an area to prevent spread of contamination by biological vectors is the responsibility of the owner of the waste site. Recommendations made informally can fall on deaf ears, not reaching the right level of management attention. The biological control program manager should consider providing formal recommendations to DOE and the responsible contractor so appropriate funding and priority can be made for implementing remedial actions.

- The WIDS system

The WIDS process is a reactive one, requiring input from individuals, for actions to be taken. If it is everyone's responsibility, it becomes nobody's responsibility to report these areas to WIDS. Based on the excessive number of contaminated areas that are not in WIDS and the fact that these conditions have existed for years, there does not appear to be adequate proactive activity in assuring the WIDS sites are accurately identified.

The surveillance team, under a separate report in the operational awareness data base, made recommendations to DOE to strengthen the requirements within TPA-MP-14 and to provide clarification on how spreads of contamination by biological vectors are entered into WIDS.

- The Near Facility Environmental Radiological Monitoring

The near facility environmental radiological monitoring program (separate from the PNNL operated far-field environmental monitoring program), like WIDS, requires input from multiple contractors. The schedule, through multiple contractor agreement is

published by FHI, while the personnel, RCTs, performing the tasks, are from various contractors. The current contractors, FHI, CHPRC, and WCH, have approved the Environmental Monitoring Schedule, HNF-SP-0098, Rev. 20. Completion of the scheduled radiological surveys is required to "provide a level of assurance that the effluent and contamination controls for the various facilities and waste sites are effective" (DOE/RL-91-50).

RCTs not part of the FHI organization expressed concern over the lack of priority given to completion of the quarterly radiological surveys for the environmental monitoring program. Their supervision has been more hesitant than in past contracts to authorize/schedule them to perform this work since it does not support completion of the contractor's project scope of work. An effective mechanism for resolving these jurisdictional issues between contractors and between projects within a single contractor before the scheduled survey is missed does not appear to be implemented.

RL Lead Assessor Closure Required: YES NO

Contractor Self Assessment:

Records indicate the issues of inadequate control of spread of contamination by biological vectors and inadequacies in incorporating sites into WIDS have been identified by radiological control technicians at Tank Farms, through multiple problem evaluation requests (PERs), and by trending of data by the contractor and DOE. However, self-assessments and corrective actions by the contractor were less than adequate.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Ray Johnson, FHI
Pete Lombardozzi, FHI
Steve McKinney, FHI



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

09-SED-0127

JUN 12 2009

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL14655 - TRANSMITTAL OF SURVEILLANCE REPORT S-09-SED-WCH-010, BIOLOGICAL CONTROL PROGRAM, WASTE INFORMATION DATA SYSTEM (WIDS), AND NEAR FACILITY ENVIRONMENTAL RADIOLOGICAL MONITORING

The purpose of this letter is to transmit Surveillance report S-09-SED-WCH-010, Biological Control Program, WIDS, and Near Facility Environmental Radiological Monitoring. The surveillance investigated adverse trends in number and severity of radioactively contaminated tumbleweeds and animal feces identified outside of radiologically posted areas. Additionally, the surveillance was a reactive surveillance investigating worker allegations of improper control of the spread of contamination from biological vectors over several years and inadequate control and monitoring of these areas with spreading contamination.

The effectiveness of the biological control program, WIDS administration, and Near Facility Environmental Radiological Monitoring involves cooperative efforts of multiple contractors and DOE operations offices. While the surveillance focused on examples of deficiencies at CH2M HILL Plateau Remediation Company (CHPRC), Fluor Hanford, Inc. (FHI) and Washington River Protection Solutions, LLC (WRPS) work areas, the deficiencies and corrective actions require cooperative efforts of multiple contractors and DOE Operations Offices on the Hanford Site. This surveillance is being issued to WCH for your review of similar deficiencies in your work areas, and for your support of corrective actions to the cross-cutting issues. The surveillance resulted in one concern, seven findings and one observation. Due to the significance of the issues identified, RL requests that WCH conduct an extent of condition review and provide the results with any corrective actions identified to DOE within 60 days of receipt of this letter.

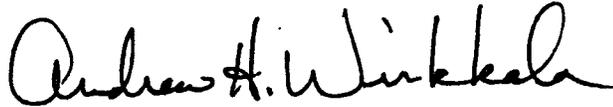
Mr. C. G. Spencer
09-SED-0127

-2-

JUN 12 2008

If you have any questions, please contact me or Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,



Andrew H. Wirkkala
Contracting Officer

SED:BMP

Attachment

cc w/attach:

S. L. Feaster, WCH
T. A. Harris, WCH
D. H. Houston, WCH
D. L. Plung, WCH
R. J. Skwarek, WCH

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillant: J. DeMers and B. Pangborn

Surveillance Number: S-09-SED-WCH-010

Date Completed: April 3, 2009

Contractors: Fluor Hanford Inc. (FHI), CH2M HILL Plateau Remediation Company (CHPRC), Washington Closure Hanford LLC (WCH), Washington River Protection Solutions, LLC (WRPS)

Facility: Cross-cutting

Title: Biological Control Program, Waste Information Data System (WIDS), and Near Facility Environmental Radiological Monitoring.

Guide: 10 CFR 835 and the Tri-Party Agreement (TPA)

Surveillance Scope:

This surveillance of the biological control program was scheduled in the Integrated Evaluation Plan (IEP) to follow up on data showing adverse trends in numbers and severity of levels of radioactively contaminated tumbleweeds and animal feces identified outside of radiologically posted areas. Additionally, this surveillance was a reactive surveillance investigating worker allegations of improper control of the spread of contamination from biological vectors over several years and inadequate control and monitoring of these areas with spreading contamination. The investigation that was performed identified additional issues with compliance with the TPA in the area of reporting changes to waste sites in WIDS. While the surveillance did not specifically address WCH worksites, this report is being issued to WCH for evaluation of similar issues.

Surveillance Summary:

The surveillance team observed expanded radiological areas within the Hanford Site resulting from biological transportation of contamination; reviewed reports, procedures and other documentation; and interviewed personnel.

The surveillance resulted in one concern supported by seven findings and one observation.

- **S-09-SED-WCH-010-C01:** Deficiencies in the process for control of spread of contamination by biological vectors resulted in inadequate control, monitoring and posting of spreads of contamination.
- **S-09-SED-WCH-010-F01:** Ongoing spread of radioactive contamination by biological vectors near Tank Farms operational areas was not appropriately monitored and areas posted.
- **S-09-SED-WCH-010-F02:** Contamination spread at S Farms by rabbits has been ongoing for more than 10 years; the contractors have not identified and controlled the source of contamination spread.
- **S-09-SED-WCH-010-F03:** The required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect changes in the waste management unit status from the geographically expanding contamination spreads.
- **S-09-SED-WCH-010-F04:** Contractors are not in full compliance with TPA-MP-14. Multiple contractors have had the opportunity to incorporate the expanding contaminated areas into WIDS, but have not always done so.
- **S-09-SED-WCH-010-F05:** Self-assessment and independent assessments of the compliance with reporting of changes to WIDS, and the associated management of corrective actions, was less than adequate.
- **S-09-SED-WCH-010-F06:** Flow down of requirements regarding identification of expanding or new WIDS sites into procedures is less than adequate.
- **S-09-SED-WCH-010-F07:** The quarterly Environmental Radiological Survey Summary was found to under-report biological control incidents.
- **S-09-SED-WCH-010-O01:** The Biological Control Program, WIDS program, and Environmental Monitoring Programs require effective coordination and cooperation among all the contractors for effective implementation. This is an inherent weakness. Contracts may need to be strengthened to identify minimum performance expectations and ensure appropriate cooperation among the contractors.

Due to the significance of the deficiencies identified, the contractor is requested to submit a Corrective Action Plan within 60 days of receipt of the surveillance report.

Surveillance Results:

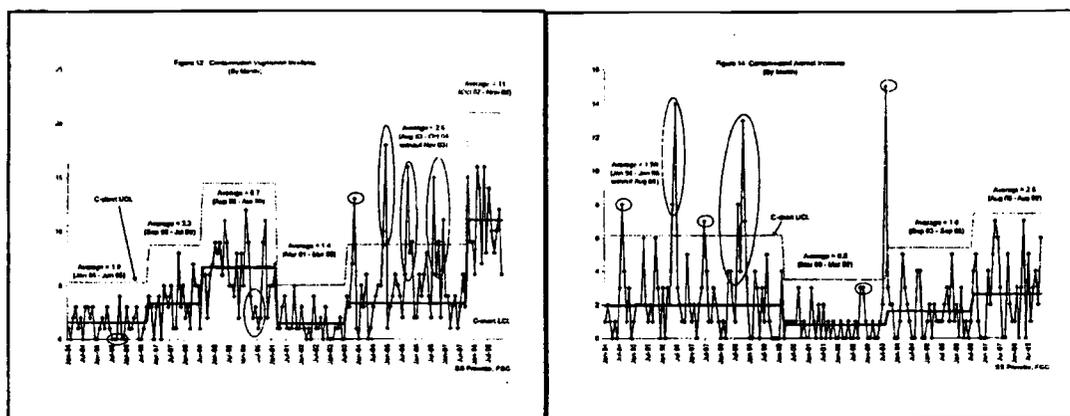
Concern: S-09-SED-WCH-010-C01

Deficiencies in the process for control of spread of contamination by biological vectors resulted in inadequate control, monitoring and posting of spreads of contamination.

Discussion:

Data shows an adverse trend in the spread of contamination by biological vectors.

- Increases in frequency of contaminated vegetation and contaminated animal incidents have occurred.



Trending has also shown an increase in the contamination levels.

- Less than adequate access to areas for herbicide application in 2005 and 2006 and subsequent inadequate removal of these tumbleweeds resulted in large spreads of contamination.

Interviews with personnel from the biological control program and the Tank Farms contractors and reviews of weekly reports from the biological control program from 2005 through Mid-March of 2009 indicated a big factor in the spread of contamination by tumbleweeds was less than adequate application of herbicides within Tank Farms and other areas requiring coordinated access. Unavailability of support for the herbicide applications at Tank Farms and other locations was the major cause of less than adequate application of herbicides. Data showed the following:

From January 2005 to Mid-March 2009, work was canceled on seventy days (36% of cancellations were in 2005, 50% of the cancellations were in 2006, 10% of the cancellations were in 2007, 4% of cancellations were in 2008, and none in 2009 thus far). This shows an improving trend in coordination of the work to control tumbleweeds through application of herbicides.

83% of the cancellations were at Tank Farms.

66% of the cancellations were due to differing priorities (other work taking priority, unavailability of operator support and unrelated operational safety stand downs impacting access); 26% of the cancellations were due to weather (Winds,

rain, ice and snow); and 8% were due to biological control program equipment issues.

Discussions with personnel indicated lack of prompt clean-up of the tumbleweeds within the farms, such as at 241-A, resulted in the spread of contamination as the tumbleweeds died, broke off, and spread their contamination as they were blown across the Tank Farms operational areas. These large contaminated areas were not cleaned up at the time of the investigation by DOE.

- Spread of contamination by rabbits near S Tank Farms has been ongoing for more than ten years; the source of contamination has not been adequately identified and stabilized.

WIDS site 200-W-54, Contamination Migration from 241-SX Tank Farm description specifies: "This site is an expanding area of contamination migration. The original unplanned release was defined in 1997. It was a large, irregular shaped Soil Contamination Area (SCA) located on the east side of 241-S/SX Tank Farms. In 1997 it measured approximately 175 meters (575 feet) by 100 meters (330 feet). Another Global Positioning Survey was done in 1998 The posted Soil Contamination Area has been extended approximately 50 meters (165 feet) to the west (up to the Tank Farm fence) and approximately 200 meters (660 feet) in the north-south direction. A site visit in August 2000 found multiple additional radiologically chained and posted areas in this vicinity. There is also one separately posted Contamination Area located north of 241-SY Tank Farm, across a gravel road In 2002, 200-W-54 was consolidated with the 241-S, SX, SY Soil Site (200-W-96), but because of the increasing size of 200-W-54, it was unconsolidated from 200-W-96 in December 2004" This data and a review of the biological control program and occurrence reporting data from 2005 through Mid-March, 2009, shows this problem of expanding contamination from rabbit intrusion has been ongoing for more than 10 years and the source of contamination has not been identified or stabilized. These are two examples of less than adequate implementation of the biological control program.

The review of the biological control program identified major deficiencies in the control, monitoring, and posting of contamination spreads. This concern is supported by seven findings and one observation discussed below.

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

Finding: S-09-SED-WCH-010-F01

Ongoing spread of radioactive contamination by biological vectors near Tank Farms operational areas was not appropriately monitored and areas posted.

Requirement(s):

10 CFR 835.603 specifies "Each access point to radiological areas and radioactive material areas (as defined at 835.2) shall be posted with conspicuous signs bearing the wording provided in this section."

DOE/RL-2002-12, Hanford Radiological Health and Safety Document, Section E specifies the contractual requirements for posting soil contamination areas.

10 CFR 835.401(a) specifies "Monitoring of individuals and areas shall be performed to: (1) Demonstrate compliance with the regulations in this part; (2) Document Radiological Conditions; (3) Detect changes in radiological conditions; (4) Detect the gradual build-up of radioactive materials (5) Verify the effectiveness of engineering."

Discussion:

During the investigation of an employee concern, Radiological Control Technicians (RCTs) at Tank Farms discussed how there were areas near their work site where contamination is known and understood to be located outside the Tank Farm boundaries that was not being properly monitored and posted. Their management had given them specific instructions not to monitor the areas since they "belonged to another contractor." The concern was that no contractor was monitoring and controlling these areas. When asked by DOE, a small area was monitored and the existence of a spread of contamination was confirmed (up to 400,000 dpm/100cm²) including spots near the road and near the portable restroom facility used by Tank Farms workers.

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

Finding: S-09-SED-WCH-010-F02

Contamination spread at S Farms by rabbits has been ongoing for more than 10 years; the contractors have not identified and controlled the source of contamination spread.

Requirement(s):

10 CFR 835.1102(a) specifies "Appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions."

10 CFR 835.1102(b) specifies "Any area in which contamination levels exceed the values specified in appendix D of this part shall be controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable surface contamination levels."

Discussion:

Discussions with the biological control program biologist indicated the spread of contamination by rabbits is likely due to the rabbits consuming an exposed source of radioactive waste for its salt content. The levels of contamination in the rabbits and rabbit feces, the inclusion of alpha radionuclides in the feces (not found in tumbleweeds) and the less likely choice of consuming a mature tumbleweed as a source of food compared to other vegetation available, indicated the source of contamination is not from consumption of tumbleweeds.

It is likely, due to the contamination levels found in the rabbit feces, that the source of exposed radioactive material would be an un-isolated or possibly un-posted contamination area. This source of contamination has been accessible for more than 10 years without adequate radiological surveys being performed to discover its location and stabilize it to prevent the ongoing rabbit intrusion. This is not compliant with the requirements of 10 CFR 835.

The May 4, 2000, Enforcement Guidance Supplement EGS 00-01, titled "Enforcement Position Relative to the Discovery/Control of Legacy Contamination, from R. Keith Christopher, specifies the following (excepts):

"For the purpose of this EGS, legacy radioactive contamination is generally defined as radioactive contamination resulting from historical operations that is unrelated to current activities. Over the past year, I have received questions from various contractors related to the applicability of 10 CFR 835 to legacy contamination, particularly to its discovery in uncontrolled areas. Specifically, contractors have questioned whether such a discovery represents a noncompliance with 10 CFR 835 that could lead to a potential enforcement action. The general view advanced by contractors with whom I have communicated is that since the contamination is "legacy" and was spread during a previous contractor's activities, the discovery falls outside the scope of 10 CFR 835 and does not represent a noncompliance or potential enforcement situation. I have also noted a mistaken perception among several contractors that as long as legacy contamination remains undiscovered, it creates a defense to enforcement action. This perception is of particular concern, since it acts as a disincentive to implementing proactive and effective survey programs. As discussed below, enforcement discretion will only be applied in those instances where effective survey programs are in place."

"The concept of legacy or pre-existing contamination is neither defined nor discussed in 10 CFR 835 (both original and amended versions). No exclusions for pre-existing conditions (including legacy contamination) are contained in 10 CFR 835, Subpart A."

"Consequently, the identification of any radioactive surface contamination (legacy or otherwise) above the applicable levels contained in 10 CFR 835, Appendix D, in an un-posted and uncontrolled area typically represents a non-compliance with 10 CFR 835 requirements."

“In recognition of the specific circumstances surrounding legacy contamination discovery events, EH-Enforcement does not typically plan to pursue enforcement for non-compliances identified in association with such. The application of this enforcement discretion, however, would be subject to all of the following conditions:

- An effective radiological survey program is in place and functioning.
- Appropriate and timely corrective actions (such as posting, effective area control, decontamination, etc.) are taken upon identification of the contamination.
- It is unreasonable to expect the contamination to have been identified earlier, either through implementation of the radiological survey program, the review of readily available historical information, or the prudent response to previous contamination incidents.”

The spread of contamination by rabbits near S Farms has been ongoing for more than ten years, and less than adequate radiological surveys and inadequate corrective actions have been taken to identify and stabilize the source of radioactive material being consumed by the rabbit population in the area.

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

Finding: S-09-SED-WCH-010-F03

The required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect changes in the waste management unit status from the geographically expanding contamination spreads.

Requirement(s):

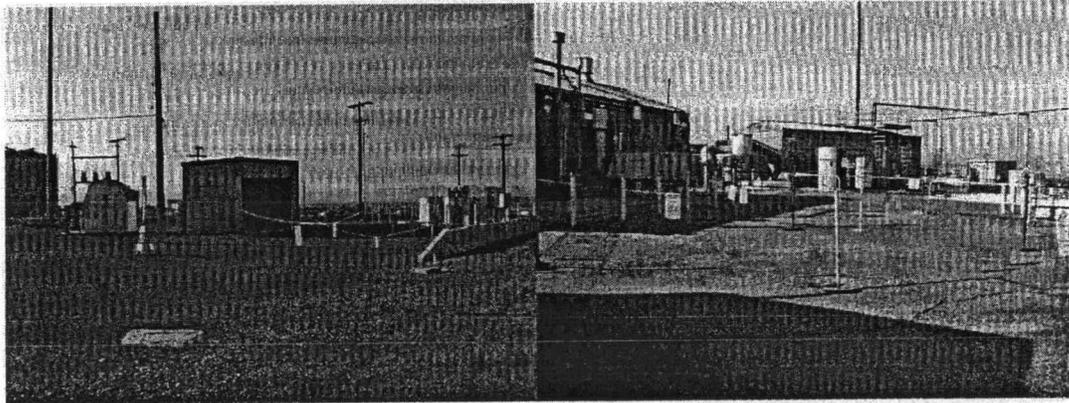
DOE/RL-89-10, Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Action Plan, Section 3.5 specifies “The Waste Information Data System (WIDS) is the electronic database of waste site information for the Hanford Site. The WIDS identifies all waste management units on the Hanford Site, and describes the current status of each unit. ...The system is maintained by the DOE in accordance with the WIDS change control system, which documents and traces all additions, deletions and/or other changes dealing with the status of the waste management units.... A waste management report... shall be generated annually by the DOE in January of each year.... This report shall reflect all changes made in waste management unit status during the previous year.”

Discussion:

The surveillants observed various areas on the Hanford Site that were posted contamination areas (CA) and soil contamination areas (SCA) and compared their locations with the current map of the designated WIDS Sites. Many of these areas were not identified as a WIDS Site on the map. Discussion with Tank Farms workers

indicated these areas have been expanding over several years due to inadequate control of spread of contamination by biological vectors, but have not all been incorporated into WIDS and thus had not been assigned to a contractor for control and clean-up. Some of the areas have been put into the WRPS monitoring program due to the perseverance of the Washington River Protection Solutions (WRPS) (Tank Farms Operations Contractor [TOC]) RCTs.

Examples of these areas are shown below:



SY Farm

241-A

There are many more areas than shown above where the spread of contamination has occurred and has not been incorporated through changes to the WIDS. As a result, the required annual Hanford Site Waste Management Units Report (HSWMUR) does not reflect all the changes in the waste management unit status from the geographically expanding contamination spreads. This does not meet the intent of the requirement to submit an annual update.

Discussions with the CHPRC WIDS Database team indicated an investigation of the situation was made after DOE identified the issue. The investigation indicated 38 radiological areas near Tank Farms were identified for evaluation to go into WIDS. Some of the areas should have been decontaminated promptly vice being made into a WIDS site (e.g., surface contamination from tumbleweed fragments on concrete surface), some should be added to an existing WIDS site, and some are needed to be made into new WIDS sites. The investigation confirmed the DOE issue. The discussion with RL also indicated this issue of a backlog of radiological areas not submitted for evaluation to go into WIDS comes up about every five years, indicating the processes in place to update WIDS annually have not been effective.

Since DOE uses WIDS identifiers to assign responsible contractors in the contracts, this has left a hole in the system and has resulted in confusion as to the ownership for monitoring and control of some of these areas. This confusion resulted in unmonitored

and un-posted contamination areas where the continued spread of contamination was not being properly monitored or controlled (See Finding S-09-SED-FHI-008-F01).

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

Finding: S-09-SED-WCH-010-F04

Contractors are not in full compliance with TPA-MP-14; multiple contractors have had the opportunity to incorporate the expanding contaminated areas into WIDS, but have not always done so.

Requirements:

RL-TPA-90-0001, TPA-MP-14, Section 3.1, All Hanford Site Contractors and Personnel, specifies "The DOE shall require all Hanford Site contractors to notify the WIDS Administrator concerning new potential WIDS sites and new information concerning existing WIDS sites."

RL-TPA-90-0001, TPA-MP-14, Section 5.1, Identification of a New WIDS Site or New Information, specifies "Anyone that has discovered a potential new WIDS site or has discovered new information about an existing WIDS site should submit the information to the WIDS administrator."

Discussion:

Various contractors have had the opportunity to report these areas of expanding contamination as they have been identified and posted for inclusion in the WIDS system (e.g., FHI with input from the biological control program personnel and/or environmental monitoring program, WRPS with input from the WRPS radiological control technicians...), but have often failed to do so. As stated in the finding above, there are significant discrepancies between posted areas and WIDS information.

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

Finding: S-09-SED-WCH-010-F05

Self-assessment and independent assessments of the compliance with reporting of changes to WIDS, and the associated management of corrective actions, was less than adequate.

Requirement(s):

10 CFR 830.122 Quality assurance criteria, Criterion 9, Assessment/Management Assessment specifies "Ensure managers assess their management processes and identify

and correct problems that hinder the organization from achieving its objectives.”
Criterion 10, Assessment/Independent Assessment, specifies “(1) Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. (2) Establish sufficient authority, and freedom from line management, for the group performing independent assessments.”

Discussion:

Requests for contractor self-assessments in the area of WIDS reporting were made. No contractor was able to demonstrate self-assessment of their implementation of WIDS reporting.

The fact that these areas have been building for years without all being incorporated into WIDS indicates less than adequate oversight.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-WCH-010-F06

Flow down of requirements regarding identification of expanding or new WIDS sites into procedures is less than adequate.

Requirement(s):

10 CFR 830.122 Quality Assurance Criteria, (e) Criterion 5 Performance/Work Processes, specifies “(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.”

RL-TPA-90-0001, TPA-MP-14, Section 5.1, Identification of a New WIDS Site or New Information, specifies “Anyone that has discovered a potential new WIDS site or has discovered new information about an existing WIDS site should submit the information to the WIDS administrator.”

Discussion:

A review of HNF-RD-39470 “Integrated Biological Control Program” indicated the requirement for notifying the WIDS administrator when a new waste site is discovered or changes to an existing site are discovered has not been flowed down to this document. Discussions with the Biological Control Program Biologist indicated none of the biological control program procedures have incorporated this requirement. The Biological Control Program is one of several ways that new or changes to an existing waste site are identified. Discussions with the Biological Control Program biologist indicated that only within the past few months did information on discovery of spread of

contamination get forwarded to the WIDS Administrator. This was verified through a review of WIDS site 200-W-54, which had no information on the spreads of

contamination documented in ORPS reports and in biological control program records for many years until a recent 2009 entry was made.

Flow down of requirements into the working procedures is necessary to ensure compliance with requirements. Procedures provide the triggers to implement the requirements. Based on the ineffectiveness of getting the spreads of contamination documented into WIDS in a timely manner, it is likely there are other deficiencies in the flow down of these requirements into procedures that would affect other aspects of WIDS management.

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

Finding: S-09-SED-WCH-010-F07

The quarterly Environmental Radiological Survey Summary was found to under-report biological control incidents.

Requirement(s):

10 CFR 830.122 (c)(4) states "Review item characteristics, process implementation and other quality-related information to identify items, services, and processes needing improvement."

Discussion:

The surveillant reviewed HNF-SP-0665, Revision 72, Quarterly Environmental Radiological Survey Summary, First Quarter 2009, 100, 200, 300, and 600 Areas.

The data displayed in Table 1, Contamination Incidents Calendar Year 2009, was incomplete. There were no incidents identified through the Tank Farm Operations Contractor Problem Evaluation Request (PER) system. DOE had observed RCTs guarding some contaminated rabbit pellets in early February (documented in WRPS-PER-2009-0200 per discussions with the radiological control supervisor at Tank Farms). This incident was not in the quarterly report. Other PERs in the possession of DOE showing spread of contamination also not documented include WRPS-PER-2009-0251 (WIDS 600-269 2/13/2009), WRPS-PER-2009-0265 (5 spots 2/17/2009), WRPS-PER-2009-2092 (tumbleweed fragments C farm 2/19/2009). The process for obtaining data from the Tank Farm contractor for inclusion in the Quarterly Environmental Radiological Survey Summary was less than adequate. Discussions with the Near Facility Environmental Monitoring Program manager indicated there is not a formal written agreement.

Other comments on the report:

- Although CHPRC did not complete 18 assigned scheduled surveys, the report does not address compensatory or corrective actions.
- The report specifies "No new waste sites were identified for inclusion into the Waste identification Data System." This is misleading since there were expanding areas of contamination that were posted as either a contamination area or soil contamination area (see findings above).

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

Observation: S-09-SED-WCH-010-001

The Biological Control Program, WIDS program, and Environmental Monitoring Programs require effective coordination and cooperation among all the contractors for effective implementation. This is an inherent weakness. Contracts may need to be strengthened to identify minimum performance expectations and ensure appropriate cooperation among the contractors.

Discussion:

- Biological Control Program

Getting Cooperation between contractors is difficult

The process for the biological control program includes the use of multi-contractor interface meetings to discuss contractor needs and issues and the development of contractor administrative interface agreements. The surveillants observed several of these meetings. Inconsistency in representation at the meetings, differing opinions on contractual requirements, and individuals making commitments for a company without the authority or without fully understanding the company's baseline costs, were just some of the problems observed. The changes in contracts made these meetings particularly difficult as new contractors were getting acquainted with their responsibilities and the differences in levels of funding from prior years impacted levels of baseline services and willingness to commit resources.

In prior years when FHI had both the biological control program and remedial action work in the central plateau, the contractor administrative interface agreement for the biological control program made greater promises of service than were practical based on actual funding for the biological control program. As an example, the prior interface agreement committed FHI to responsibility for monitoring and control of contamination outside the Tank Farm fence. While small spreads of contamination cleanup were within the budget, control of actively spreading contamination over large areas and large remediation projects was not. The problem with one contractor committing to do more than it is funded for is the inadvertent removal of responsibility of the owner of the waste

site for keeping it under control and performing appropriate monitoring to verify the adequacy of its controls. Re-educating the owners of the waste sites of their regulatory responsibilities had to be done through formal direction by DOE. Greater oversight is needed to ensure these contractor interface agreements are consistent with the baseline costs for services identified in the contracts and do not imply the service provider is assuming another contractor's regulatory responsibility.

The interface agreement for the biological control program took more than half a year to negotiate. It was approved April 7, 2009.

DOE intervention in inter-contract problems needed to be sooner rather than later

The problem of lack of cooperation between the Tank Farms contractor and the biological control program contractor occurred for two years (2005 and 2006) and was not resolved until overwhelming issues of tumbleweeds within Tank Farms resulted in Tank Farms management changing its priorities of getting access into the farms by personnel applying the herbicide. This lack of control has resulted in future costs to remediate the large areas of spread of contamination.

Recommendations by the biological control program manager are informal

Remedial action of an area to prevent spread of contamination by biological vectors is the responsibility of the owner of the waste site. Recommendations made informally can fall on deaf ears, not reaching the right level of management attention. The biological control program manager should consider providing formal recommendations to DOE and the responsible contractor so appropriate funding and priority can be made for implementing remedial actions.

- The WIDS system

The WIDS process is a reactive one, requiring input from individuals, for actions to be taken. If it is everyone's responsibility, it becomes nobody's responsibility to report these areas to WIDS. Based on the excessive number of contaminated areas that are not in WIDS and the fact that these conditions have existed for years, there does not appear to be adequate proactive activity in assuring the WIDS sites are accurately identified.

The surveillance team, under a separate report in the operational awareness data base, made recommendations to DOE to strengthen the requirements within TPA-MP-14 and to provide clarification on how spreads of contamination by biological vectors are entered into WIDS.

- The Near Facility Environmental Radiological Monitoring

The near facility environmental radiological monitoring program (separate from the PNNL operated far-field environmental monitoring program), like WIDS, requires input from multiple contractors. The schedule, through multiple contractor agreement is

published by FHI, while the personnel, RCTs, performing the tasks, are from various contractors. The current contractors, FHI, CHPRC, and WCH, have approved the Environmental Monitoring Schedule, HNF-SP-0098, Rev. 20. Completion of the scheduled radiological surveys is required to "provide a level of assurance that the effluent and contamination controls for the various facilities and waste sites are effective" (DOE/RL-91-50).

RCTs not part of the FHI organization expressed concern over the lack of priority given to completion of the quarterly radiological surveys for the environmental monitoring program. Their supervision has been more hesitant than in past contracts to authorize/schedule them to perform this work since it does not support completion of the contractor's project scope of work. An effective mechanism for resolving these jurisdictional issues between contractors and between projects within a single contractor before the scheduled survey is missed does not appear to be implemented.

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

Contractor Self Assessment:

Records indicate the issues of inadequate control of spread of contamination by biological vectors and inadequacies in incorporating sites into WIDS have been identified by radiological control technicians at Tank Farms, through multiple problem evaluation requests (PERs), and by trending of data by the contractor and DOE. However, self-assessments and corrective actions by the contractor were less than adequate.

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

Management Debriefed:

Darren Boone, WCH



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

JUN 15 2009

09-SED-0096

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 – SPECIAL PACKAGING AUTHORIZATION (SPA)
IMPLEMENTATION SURVEILLANCE (S-09-SED-PRC-011)**

The purpose of this letter is to transmit RL Surveillance Report S-09-SED-PRC-011 dealing with the effectiveness of CHPRC SPA implementation. The report identifies one concern, five findings, and two observations. Based upon the results of this surveillance, significant issues were identified concerning the failure to fully integrate SPAs into the CHPRC Packaging and Transportation Program. You are requested to provide a corrective action plan in accordance with CRD O 470.2B (Supplemented Rev. 2) for the concern and five findings within 45 days of receipt of this letter. If you have any questions, please contact me or Pete J. Garcia, Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Jan Osso
Contracting Officer

SED:RJS

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillant: Richard J. Self (Lead)

Surveillance Number: S-09-SED-PRC-011

Date Completed: March 29, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Packaging and Transportation (P&T) Transportation Safety Organization (TSO)

Title: Surveillance on CHPRC Special Packaging Authorization (SPA) Implementation

Guide: Not applicable

TABLE 1: Surveillance (ST) Team Members	
Name	Areas Covered
Richard SELF, Surveillance Team Lead	SPA Documents, Technical Requirements, SPA Checklists, Training, SPA Administrative documents
Dennis CLAUSSEN	Technical Requirements, SPA Checklists, Tie Down Analyses
Paul MACBETH	SPA Documents, Technical Requirements, SPA Checklists, Training, SPA Administrative documents

Surveillance Scope:

The surveillance was performed to determine the contractor's effectiveness in implementing the SPA program as defined in the Hanford Site Transportation Safety Document (TSD) (DOE-RL-2001-36, Rev. 1-B).

Surveillance Summary:

The Surveillance Team found in general that SPA shipments are not being conducted in accordance with CHPRC procedures or all applicable TSD requirements. The surveillance resulted in the identification of the following concern, five findings, and two observations.

- **S-09-SED-PRC-011-C01:** Major programmatic deficiencies exist in CHPRC implementation of the SPA process as a result of the failure of CHPRC to fully integrate SPAs into the P&T program.
- **S-09-SED-PRC-011-F01:** Training requirements for personnel performing SPA related technical evaluations are not included in P&T procedures.
- **S-09-SED-PRC-011-F02:** TSO technical staffing and qualification are inadequate to generate and review SPA checklists.
- **S-09-SED-PRC-011-F03:** There is no formal CHPRC process for generating, reviewing and assessing SPA checklists and supporting documents.
- **S-09-SED-PRC-011-F04:** There is inadequate Quality Assurance program personnel participation in the SPA process.
- **S-09-SED-PRC-011-F05:** There is no formal assessment program to evaluate SPA program implementation, performance and quality of product produced.
- **S-09-SED-PRC-011-O01:** There is little CHPRC participation in the SPA program process.
- **S-09-SED-PRC-011-O02:** The K Basin Shippers seem committed to the SPA process.

The contractor's implementation of the SPA process exhibited significant weaknesses. As a result of the concern and findings, CHPRC is required to provide a Corrective Action Plan to address resolution of these findings.

Surveillance Results:

S-09-SED-PRC-011-C01: Major programmatic deficiencies exist in CHPRC implementation of the SPA process as a result of the failure of CHPRC to fully integrate SPAs into the P&T program.

Discussion:

Shipments of radioactive materials on-site are governed by the requirements in the Hanford Site TSD (DOE/RL-2001-36). The SPA program is defined in Appendix I of the TSD, which includes requirements for making shipments using SPAs under the TSD program.

The Hanford Site TSD requires that shipments be made using approved procedures to ensure safety and compliance with regulatory requirements. CHPRC implementing procedures have not been kept up to date and do not include instructions for compliance with requirements for SPA use. As discussed under Supporting Findings S-09-SED-PRC-011-F01 – F05, major programmatic deficiencies exist in the SPA program as a result of the failure of CHPRC to fully integrate SPAs into the P&T program. Basic infrastructure (e.g., training, procedures, quality assurance) is inadequate for the CHPRC SPA program. This leads to a significant potential for mis-application of the SPA concept. Major improvements in SPA program infrastructure are necessary.

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

Supporting Findings:

S-09-SED-PRC-011-F01: Training requirements for personnel performing SPA related technical evaluations are not included in P&T procedures.

Requirements:

Hanford Site TSD, DOE/RL-2001-36, Rev-1B, Section 8.3.1, Requirements, states: *Onsite shipments of hazardous materials and wastes including radioactive materials and wastes must be executed in accordance with this TSD and in accordance with contractor implementing procedures.*

HNF-RD-7900 *Transportation and Packaging Requirements (TPRs)*, Rev. 7, August 12, 2008, states:

- a. 2.1 Item # 9: Ensure an adequate training program is in place for personnel who package and transport hazardous materials and hazardous waste; personnel are appropriately trained and qualified; and auditable training records meet retention requirements.
- b. 2.5 Item #15: Each contractor must have a formal program in place and sufficient staffing to perform the actions identified in the TSD.
- c. 3.1 Item #8: Ensure programs and procedures are in place to train and qualify onsite personnel in the proper procedures for authorizing/certifying hazardous material and waste shipments.
- d. 3.2 Item #3: Ensure assignment of trained and authorized personnel to prepare onsite and offsite shipments of hazardous material in compliance with requirements.

Discussion:

The Surveillance Team was unable to locate required training requirements, procedures, records or standards applicable to personnel performing SPA technical reviews. The Surveillance Team reviewed the following P&T program documents for information on the training and qualification process for personnel conducting SPA related technical evaluations:

HNF-PRO-28894, *Hanford Special Packaging Authorizations*, Rev. 3, August 12, 2008

HNF-PRO-166, *Transportation Safety Training*, Rev. 12, July 24, 2008

Neither of these documents list training and qualification requirements for personnel conducting technical reviews on SPA related technical documents (including Packaging Evaluations, Payload Specific Evaluations, Tie Down Analyses, and SPA Checklist preparation.).

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

S-09-SED-PRC-011-F02: TSO technical staffing and qualification are inadequate to generate and review SPA checklists.

Requirements:

DOE O 460.1B, *Packaging and Transportation Safety*, implemented through the TSD, requires in Section g., Training:

- a. Each person who offers for transportation or transports or transfers hazardous materials, substances and wastes shall:
 - (1) Develop and implement a training program and procedures for the safe packaging, transfer and transportation of hazardous materials, substances, and wastes;
 - (2) assure that all personnel who support and/or perform packaging, transfer and transportation operations are appropriately trained and qualified; and
 - (3) maintain auditable training records in accordance with approved DOE or site-specific records schedule.

HNF-RD-7900 *TPRs*, Rev. 7, August 12, 2008, states:

- a. 2.5 Item #14: Each contractor must have a formal program in place and sufficient staffing to perform actions identified in the TSD.
- b. 2.5 Item #15: Contractor Responsibilities, A P&T Functional Organization.
- c. 3.2 Item #3: Ensure assignment of trained and authorized personnel to prepare onsite and offsite shipments of hazardous material in compliance with requirements.

Discussion:

The Surveillance Team was unable to locate any evidence that CHPRC has implemented the formal programs required by the foregoing requirements documents, including HNF-RD-7900 *TPRS*, Rev. 7, August 12, 2008. Further, no records were found showing that personnel involved in preparing SPA checklists had received training on the SPA process or specific SPA requirements.

There has been a 100% rejection rate of initial submittals of SPA related technical documents submitted to RL SED during Q2 FY 2009 by CHPRC. Each of the documents required extensive contractor rework and SED reviews before they could be approved.

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

S-09-SED-PRC-011-F03: There is no formal CHPRC process for generating, reviewing and assessing SPA checklists and supporting documents.

Requirements:

Hanford Site TSD, DOE/RL-2001-36, Rev. 1B, Chapter 4 *Organizational Responsibilities*, Section 4.3 requires:

- a. Each contractor performing P&T activities must have a formal program in place to ensure compliance with the TSD standards that are applicable to the onsite shipment or transfer of hazardous materials, substances, and wastes as defined by applicable regulations.
- b. Each contractor must identify an organization to manage the program and an approval authority to approve packaging systems authorized under the TSD.
- c. Each contractor must complete a compliance or implementation matrix that identifies organizational responsibilities and key personnel.
- d. Each contractor must list manuals, policies, procedures, processes, and systems to implement the TSD requirements and standards, and demonstrate compliance.

- e. Each contractor must implement and maintain a formal system for documenting the packaging and payload evaluation process to ensure that all packaging are approved for the payload, that packaging operating and maintenance requirements are met for each shipment, and that package configuration control is maintained within the packaging authorization.

Discussion:

The major P&T programmatic documents either do not discuss SPAs at all (other than listing HNF-PRO PRO-28894 *Hanford SPA*, Rev. 3, August 12, 2008 as a reference) (e.g., HNF-RD-7900 *TPRs*, Rev. 7, August 12, 2008), *HNF-25689, Transportation and Packaging Quality Assurance Program Plan (QAPP)*, Rev. 3, January 15, 2008, or are dated and do not discuss all of the currently authorized SPAs (e.g., HNF-PRO PRO-28894 *Hanford Special Packaging Authorizations*, Rev. 3, August 12, 2008, omits the Monolith SPA, which CHPRC is currently using, from its scope). As noted in Finding F02 above, there is a high incidence of errors in SPA checklists and supporting documentation requiring multiple review cycles for acceptance. Development of formal procedures for their preparation and internal contractor review prior to submittal would improve their quality.

RL Lead Assessor Closure Required: YES NO

S-09-SED-PRC-011-F04: There is inadequate Quality Assurance program personnel participation in the SPA process.

HNF-RD-7900 *TPRs*, Rev. 7, August 12, 2008, identifies the following requirements:

- a. 2.5 Item #15: Contractor Responsibilities: QA Program.
- b. 3.1 Item #10: Develop and maintain a QAPP for conducting the P&T program.
- c. 3.4 Item #1: QA Organization: Review and approve plans, safety analysis documentation, drawings (PSSDs, OTRs, etc), and specifications related to hazardous material packaging and transportation.
- d. 3.4 Item #2: Quality Assurance Organization (QAO): Inspect shipping packaging procured from outside sources and those fabricated onsite, including the verification of package qualification tests.
- e. 3.4 Item #4: QAO: Conduct periodic audits and surveillances to assess program compliance with applicable codes, standards, and requirements.

Discussion:

The major P&T programmatic documents do not discuss SPAs. The Monolith SPA Checklist and supporting documentation for the Ion Exchange Column (IXC) & Sand Filters shipments were reviewed as part of this surveillance. Engineering Change Notice (ECN) ECN No.01949.03.P001-100R4-E1 for substitution of SAE J429 Grade 8 bolts for the authorized American Society for Testing and Material Grade A325 bolts was part of this M-SPA documentation package. Review of the ECN by the QAO was "N/A'd" on the ECN. As the proposed change had major implications to Quality Assurance compliance, the bypassing of the QAO by TSO raises major concerns regarding the effectiveness of the TSO Quality Assurance Program. HNF-25689, *Transportation and Packaging QAPP*, provides little effective guidance for P&T QA program implementation.

RL Lead Assessor Closure Required:

YES [X] NO []

S-09-SED-PRC-011-F05: There is no formal assessment program to evaluate SPA program implementation, performance and quality of product produced.

Requirements:

Hanford Site TSD, DOE/RL-2001-36, Rev. 1B, Chapter 4 *Organizational Responsibilities*, Section 4.3 requires:

Each contractor must conduct an annual management assessment of their P&T safety program/operation to ensure compliance with the TSD, applicable regulations, DOE orders, and to identify opportunities to improve program performance.

HNF-RD-7900 *TPRs*, Rev. 7, August 12, 2008, states:

- a. 2.5 Item #15: Contractor Responsibilities: Assessment program.
- b. 3.4 Item #2: QAO: Inspect shipping packaging procured from outside sources and those fabricated onsite, including the verification of package qualification tests.
- c. 3.4 Item #4: QAO: Conduct periodic audits and surveillances to assess program compliance with applicable codes, standards, and requirements.

HNF-25689, *Transportation and Packaging QAPP*, Rev. 3, January 15, 2008, states:

- a. 3.9 Management Assessment: The program ensures management assessments are performed on a regular basis. Management assessments are planned and conducted in accordance with written procedures.
- b. 3.10 Independent Assessment: The program will be independently assessed periodically in accordance with FHI procedures. An audit of each Type B/fissile container that is being used will be conducted with a periodicity not to exceed three years.
- c. Appendix 1, Implementation Table for 10 CFR 71, 10 CFR 71.137, Audits-The licensee, certificate holder and applicant for a Certificate of Compliance shall carry out a comprehensive system of planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits must be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audited results must be documented and reviewed by management having responsibility for the area being audited. Follow up action, including re-audit of deficient areas, must be taken where indicated.

Discussion:

The Surveillance Team found no indication that a formal P&T QA audit and surveillance program exists, or that audits and surveillances are being conducted. Management and independent audits and assessments of compliance with regulatory requirements are key elements of a successful Integrated Safety Management System program. Documentation of completion of these reviews must be maintained to demonstrate the existence of an adequate program.

RL Lead Assessor Closure Required:

YES [X] NO []

S-09-SED-PRC-011-001: There is little CHPRC participation in the SPA program process.

Discussion:

The Monolith SPA Checklist and supporting documentation for the IXC & Sand Filters shipments were reviewed as part of this surveillance. This documentation included the ECN No. 01949.03.P001-100R4-E1 for substitution of SAE J429 Grade 8 bolts for the authorized American Society for Testing and Material Grade A325 bolts. This document was drafted by an Areva employee, checked by an Areva employee, and approved by an Areva employee. CHPRC management was not involved in the process.

RL Lead Assessor Closure Required: YES NO

S-09-SED-PRC-011-002: The K Basin Shippers seem committed to the SPA process.

Discussion:

Based upon observations conducted in support of this surveillance, the K Basin shippers are actively involved and proactive in the SPA process. Contractor staff did a commendable job in field control of the packaging activities. The facility staff appears to be committed to understanding and improving the SPA process and safe transportation in general.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment: Contractor Self-Assessments have not been conducted.

Contractor Self-Assessment Adequate: YES NO

Management Briefing: A surveillance management briefing was conducted between Surveillance Team Members, SED Management and CHPRC Nuclear Safety and TSO staff on April 20, 2009. Personnel attending:

	Name	Position/Organization
1.	Pete GARCIA	Director, DOE-SED
2.	Richard SELF	SED Lead Surveillant, DOE
3	Dennis CLAUSSSEN	SED Surveillant, DOE
4.	Paul MACBETH	SED Surveillant, DOE
5.	Judy CHRISTENSEN	Support to SED, GSSC
4.	Patrice MCEAHERN	VP, CHPRC SHSQ
5.	Calvin MORGAN	Manager, CHPRC NS
6.	Scott EDWARDS	TSO Manager, Areva
7.	Cheryl ARM	TSO Admin, CHPRC



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

JUN 25 2009

09-OOD-0057

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

**CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF SURVEILLANCE REPORT
S-09-OOD-RCP-003, PROCEDURE CONTENT AND USE**

From April 8, through May 4, 2009, RL conducted a review of select procedures, completed forms/records, and observed use of procedures in the field. Twelve Findings, five Observations, and one Good Practice are documented in the report. RL found Conduct of Operations (CONOPS) related to procedure content and use was less than adequate and it appeared significant improvement was needed. Based on discussions with your staff, WCH has recognized these opportunities for improvement, and through your CONOPS Committee, is focused on performing additional self-assessments targeted at procedure use in the field. RL acknowledges WCH's CONOPS excellence initiative that was in the process of being rolled-out to each project. RL will monitor the results of your efforts to improve procedure content and use as well as overall CONOPS.

In addition, the surveillance documents Onsite Waste Tracking Form and Waste Shipping and Receiving Plan non-compliances consistent with additional issues that were identified by WCH at 100 H in late May. Non-compliances associated with packaging and shipping of waste have occurred over the life of the River Corridor Contract. Accurate profiling, packaging, and documentation for waste shipments is critical to the safety of workers and emergency responders. RL considers waste management to be a core function for WCH. In an effort to fully understand WCH's efforts to improve compliance with established waste management processes and procedures, you are directed to process the attached surveillance report through the WCH established corrective action management system and provide a corrective action plan in accordance with SCR 470.2B (Supp. Rev. 2) for issues associated with Findings 01 and 02. RL retains closure authority for the Findings and two of the Observations, 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.

Mr. C. G. Spencer
09-OOD-0057

-2-

JUN 25 2009

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,



Jewel J. Short
Contracting Officer

OOD:JJW

Attachment

cc w/attach:

C. P Ames, WCH
J. F. Armatrout, WCH
D. M. Boone, WCH
B. C. Covert, WCH
R. A. Dodd, WCH
S. L Feaster, WCH
T. A. Foster, WCH
T. H. Harris, WCH
D. H. Houston, WCH
W. F. Johnson, WCH
P. L. Plung, WCH
R. J. Skwarek, WCH
B. D. Smith, WCH
M. F. Tavelli, WCH

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

Division: Operations Oversight Division (OOD)

**Surveillant(s): Brian Biro, Deanna McCranie, Brenda Pangborn, Joe Waring,
Allison Wright**

Surveillance Number: S-09-00D-RCP-003

Date Completed: May 8, 2009

Contractor: Washington Closure Hanford LLC (WCH)

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

Title: Procedure Content and Use

Guide: Lines of Inquiry Established in Core Surveillance Guide 9.16

Surveillance Scope:

The objective of this surveillance was to evaluate the effectiveness of the contractor's program for development and use of procedures. The Facility Representatives (FRs) reviewed selected operating and maintenance procedures, and observed use of the procedures in the field. This surveillance provides the basis for evaluating contractor performance and for establishing compliance with specific DOE requirements.

Surveillance Summary:

From April 8 through May 4, 2009, FRs conducted a review of select procedures, completed forms/records, and observed use of procedures in the field at ERDF and 100N/300 Area D4. The FRs focused on the content and use of technical procedures; however, if issues were noted during review/use of task instructions (TIs), those issues were also documented.

Documents Reviewed:

- PAS-1-1.1, Rev. 3, *Technical Procedure Development and Implementation*;

- Stoller Procedure ST-ERDF-QA-002, *Preparing, Using and Controlling Operational Documents*, Revision 2, Field Change Notice #2;
- Stoller Procedure 5-35, *Leachate and Washwater Loadout/Transfer Procedure* (Revision 6, Field Change Notice #3; and Revision 7);
- DIS-2009-18647, *Design Change Request/Design Change Notice* DCN-0600X-DD-M0012-02-01, dated April 13, 2009;
- Stoller Procedure 5-50, *Landfill Cell Operations Procedure*, Revision 7;
- Stoller Procedure Index;
- Stoller Procedure 5-28, *Traffic Access Control Plan*, Revision 2;
- Exhibit E, Technical Specification for Inspection and Maintenance of Transport/Shuttle Trucks, dated May 15, 2008;
- Project Safety Representative Health and Safety Inspections on Equipment Maintenance for November 2008 and February 2009;
- WCH Procedure WO-100-3.3, *Equipment Maintenance*, Revision 0, dated October 1, 2008;
- WCH Spreadsheet for Equipment Maintenance for Transport Trucks, printed April 14, 2009;
- Files containing WCH Trailer/Truck Inspection Checklists for maintenance activities;
- Cross-site Transfer Data Sheet for Leachate Transfers on March 24, April 14, and 21, 2009;
- 3I-00006, 324 Facility RE Cell and Airlock DP Alarm System Test;
- 3I-00754, 90 Day Sullair Compressor Filter/Oil Return Line;
- D4-200-100-SOP-002, Rev 4, 186-N *Water Treatment Plant Operating Procedure*;
- JHA D4-200-100-SOP-002, Rev 1, *Operate 186N Water Treatment Plant*;
- Task Instruction (TI) 100 09 02 19 002, Rev. 0, *Lower T-1 Tank Isolation*;
- ERDF-09-001, *ERDF Radiological Work Permit*;
- RC-1-5.1, Revision 2, *Conducting Radiological Work*;
- Personnel statements from Radiological Control Technicians (RCTs), RCT Lead, and RCT Supervisor;
- RC-200-6.2, Revision 3, *Posting Radiological Areas*;
- RC-100-7.1, Revision 1, *Managing Radiological Records*;
- RC-200-13.6, *Response to a Radiological Spill*;
- Craft Work Package, ERD-08-03-18-001, Revision 0, Offload Loads Classified as Non-Critical Lifts, Off-load Ion Exchange Column (IXC) from KBC on 35' with Lampson;
- WCH Radiological Control Daily Log Sheets, ERDF-09-0114, -0116, -0118, dated April 7-9, 2009, respectively;
- Radiological Survey Record (RSR)-ERDF-09-0498, -0508, -0509;
- 49 CFR 177.843, *Contamination of Vehicles*;
- Onsite Waste Tracking Forms (OWTFs) K-100-09-0346 and 600A-09-0362;
- Fluor Hanford KBC Project Radiological Survey Report, FD-K090294, Shipping Survey for 105KE IXC; and
- DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*.

Activities Observed:

- Dump Ramp Operations;
- Portions of two Leachate Transfers;
- Loading/Off-loading of Containers in ERDF CTA by WCH drivers;
- Conduct of Quarterly PM on 324 air compressor;
- Mock-ups of 107N T-1 Settling Tank Lower Isolation;
- 107N T-1 Settling Tank Lower Isolation; and
- 186N Water Treatment Plant Operations.

Personnel Contacted:

- Stoller Waste Management Officer;
- Stoller Operations Manager;
- WCH Truck Maintenance Lead;
- ERDF Area Superintendent;
- WCH ERDF Project Safety Representative;
- Stoller Technician;
- 100N Surveillance Operations Engineer (SOE);
- Utilities Operations Supervisor;
- 100N First Line Supervisor;
- 100N Operations Manager;
- ERDF Radcon Supervisor;
- ERDF Deputy/ Operations Manager;
- Waste Operations Director;
- RL Radcon Managers;
- WCH Radcon Manager; and
- ERDF Radcon Lead.

The FRs found Conduct of Operations (CONOPS) related to procedure content and use was less than adequate and it appears significant improvement is needed. The majority of technical procedures are in use at ERDF; therefore, the review focused on ERDF and resulted in the majority of issues documented.

In general, the level of performance observed by the FRs does not meet the “disciplined operations” that WCH is striving to achieve. As discussed in the Contractor Self-Assessment Section, WCH has also recognized this weakness and, through their CONOPS Committee, recently focused on performing additional self-assessments targeted at procedure use in the field.

The following findings, observations, and good practice resulted:

- **S-09-OOD-RCP-003-F01:** Waste Shipping and Receiving Plan (WSRP) FR-RP-W0006, Revision 1, was not implemented for 628-3 waste from 100-D (repeat issue).
- **S-09-OOD-RCP-003-F02:** OWTFs for 628-3 Waste were incomplete, some utilized the previous WCH-EE-286 form, and Stoller 5-50 was not updated to include the revised OWTF.

- **S-09-OOD-RCP-003-F03:** Design Change Notice DCN-0600X-DD-M0012-02-01 was not incorporated into Stoller Procedures, communicated to Affected Personnel, and contained outdated notes.
- **S-09-OOD-RCP-003-F04:** Conduct of Operations during ERDF Leachate Transfer was not in accordance with principles in DOE O 5480.19.
- **S-09-OOD-RCP-003-F05:** Response to contamination found on trailer at ERDF was not in accordance with the Work Instruction or RC-200-13.6.
- **S-09-OOD-RCP-003-F06:** Release Surveys on Lampson's Trailer were not documented.
- **S-09-OOD-RCP-003-F07:** Radiological Work Permit ERDF-09-0001 did not include special instructions for opening/cutting into IXC waste package.
- **S-09-OOD-RCP-003-F08:** Changes to RSR-ERDF-09-0508 were not dated.
- **S-09-OOD-RCP-003-F09:** The ERDF Traffic Pattern diagram is not being maintained current.
- **S-09-OOD-RCP-003-F10:** The parameter specified in Procedure D4-200-100-SOP-002, Rev 4, Record 1, Facility Compliance Data Sheet and Daily Report, for "Chlorine (mg/L) Finished Water" was incorrect.
- **S-09-OOD-RCP-003-F11:** The copy of Procedure D4-200-100-SOP-002, Rev 4, at the work site did not have "Working Copy, verified current" stamped or written on it and signed/dated by the user or supervisor.
- **S-09-OOD-RCP-003-F12:** Whole body surveys should have been conducted once contamination was found on Lampson trailer.
- **S-09-OOD-RCP-003-O01:** Maintenance on the Leachate Collection and Recovery System is not timely (repeat).
- **S-09-OOD-RCP-003-O02:** The senior management review of work packages for high risk work and the performance of mock-ups should both be of sufficient rigor to ensure the work instructions are of sufficient detail and proper sequence to meet management expectations.
- **S-09-OOD-RCP-003-O03:** Onsite Waste Tracking Form (OWTF) information did not contain required information, and the date disposed was incorrect.
- **S-09-OOD-RCP-003-O04:** Stoller Procedure No. 5-50, Landfill Cell Operations Procedure, was not updated to include the Posi-Shell applications using the attachment.
- **S-09-OOD-RCP-003-O05:** Opportunities for improvement exist with WO-100-3.3, Equipment Maintenance.
- **Good Practice:** Waste Management Officer provided mentoring to technician while implementing a revised procedure.

Surveillance Results:

Finding: S-09-OOD-RCP-003-F01

Waste Shipping and Receiving Plan (WSRP) FR-RP-W0006, Revision 1, was not implemented for 628-3 waste from 100-D (repeat issue). (OA 23176)

Requirements:

WSRP FR-RP-W0006, Revision 1, Section 1.7, states, "Each roll-on/roll-off (RO/RO) containing soil contaminated with Regulated Asbestos Containing Material (RACM)/Asbestos Containing Material (ACM) >1% will have an accompanying OWTF that includes a reference to WSRP-FR-RP-W0006, Rev. 1 in Block #32 'Description.' When delivering to the ERDF CTA RO/RO's containing soil contaminated with RACM/ACM >1% by weight and/or volume will be segregated from other RO/RO's."

Stoller Procedure 5-50, Rev. 7, Section 5.3.7 states, "If the OWTF indicates there is a WSRP for the waste then contact the Site Superintendent for supplementary processing and/or placement requirements."

Discussion:

Waste from the 628-3 waste site is shipped under WSRP-FR-RP-W0006, Revision 1. At ERDF the waste should have been segregated in the Container Transfer Area, and either disposed of using place and cover technique or a dedicated ramp. Contrary to the requirements above, the appropriate WSRP numbers were not on all of the OWTFs (some listed N/A and some had a WSRP for 1802-N pipe trestle); the Stoller Superintendent was not notified and a dedicated ramp or place and cover was not implemented; and the containers were not segregated in the ERDF CTA. The process for communicating the WSRP requirements and ensuring implementation should be reviewed.

FRs view this as a repeat of long standing issue with OWTFs at the generating facility, and a repeat of not properly reading the OWTF at ERDF. The contractor self-identified the issue of the wrong WSRP listed, the FR identified the lack of notification to the Site Superintendent and the failure to segregate the containers.

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

Finding: S-09-OOD-RCP-003-F02

OWTFs for 628-3 Waste were incomplete, some utilized the previous WCH-EE-286 form, and Stoller Procedure 5-50 was not updated to include the revised OWTF. (OA 23239)

Requirements:

WMT-1-2.2 *Classifying, Packaging and Communication of Hazardous Materials for Transportation*, Rev. 10, effective April 16, 2009. Page 17, OWTF Field Descriptions, Item 3, "Receipt Decision: An ERDF representative shall initial and date box 3 upon receipt of waste for disposal, stockpiled or treated."

Stoller Procedure 5-50, *Landfill Cell Operations Procedure*, Revision 7, Step 5.3.37, "Complete the required fields in the OWTF for each waste load. Refer to Appendix A - OWTF instructions for information on how to complete the OWTF, as necessary."

Discussion:

On April 29, 2009, 70 containers from 628-3 were disposed. Contrary to the requirements above, Field 3 on 63 OWTFs were not completed (no initials or date). The remaining 7 OWTFs were printed on the previous form WCH-EE-286, and did not contain that field. The containers went off all three ramps indicating training to the new OWTF was not effective. Stoller Procedure 5-50, Appendix A, has not been updated to include the new fields on the OWTF.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F03

Design Change Notice DCN-0600X-DD-M0012-02-01 was not incorporated into Stoller Procedures, communicated to Affected Personnel, and contained outdated notes. (OA 23257)

Requirement:

ENG-1-4.8, Revision 3, *Design Change Control*, Step 6.7.2.3, states, "The Project Engineer/System Engineer disseminates the subcontractor design/drawing information and the DCN within 3 days after WCH review to the affected projects, areas or personnel (and to R&DC) for comments prior to final activation of the affected system." The corresponding NOTE states affected personnel includes those performing tasks on the system.

Discussion:

On April 14, 2009, the Waste Management Officer (WMO) and Technician were preparing to start a leachate transfer to the Effluent Treatment Facility (ETF), and appropriately stopped the procedure because the valve alignment could not be completed because Valve LE-V33 and Pressure Gauge (PG) 5 had been removed. Stoller Procedure No. 5-35, Revision 6, already had three Field Change Notices (maximum allowed), therefore a procedure revision was required. FR reviewed a copy of DCN-0600X-DD-M0012-02-01 that was processed to remove PG 5, LE-V33, and the autosampler. Contrary to ENG-1-4.8, Step 6.7.2.3, the change to the system was not communicated to the users of the system. Additionally, Form WCH-DE-028 for implementing Design Change Requests/Notices does not require the affected procedures to be identified.

Also, Drawing 0600X-DD-M0012 contains two notes on the drawing that are outdated. Note 1 states, "Existing piping transfer a listed waste...." Note 2 states, "The leachate

pump station must remain operational for truck load-out Monday thru Friday during working hours." These should be updated or removed.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F04

Conduct of Operations during ERDF Leachate Transfer was not in accordance with principles in DOE O 5480.19. (OA 23257)

Requirement:

Stoller Procedure 5-35, *Leachate and Washwater Loadout/Transfer Procedure*, Revision 7, Step 5.2.19, "Approximately every 30 minutes, until a stabilized flow is achieved at the ETF, and every hour thereafter, document the following information of form ERDF-5-35.3: time of reading, ERDF totalizer reading, ERDF flow rate, ETF totalizer reading, ETF flow rate."

Discussion:

FR observed the portions of the leachate transfer conducted on April 21, 2009. Several opportunities for improvement in procedure use and other areas of conduct of operations are noted including: The technician did not record two of ETF totalizer and one ERDF gallons per minute readings at the time they were taken as required by Step 5.2.19 (corrected after FR pointed it out); technician climbed on the leachate piping to reach a valve instead of utilizing a step ladder; technician could not locate a valve during the alignment and did not reference the diagram in the procedure to find it (FR reminded the technician of the diagram and provided a copy); one data field in the spreadsheet did not have a calculation function (corrected by WMO); and improved house keeping is needed (sand on valves, large area wipe around valve LE-V3 and bucket underneath).

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F05

Response to contamination found on trailer at ERDF was not in accordance with the Work Instruction or RC-200-13.6. (OA 22910)

Requirement:

RC-200-13.6, Revision 2, *Responding to a Radiological Spill*, Section 6.4, Re-entry and Recovery Plan, 1. A Re-entry plan should address the following requirements, as applicable, a. Personnel Protective Equipment Requirements, b. Survey Requirements, c. Decontamination/Recovery Actions, and D. Air Sampling Requirements.

RC-1-5.1, Revision 2, *Conducting Radiological Work*, Section 6.8, Unusual or Unexpected Radiological Conditions, states in part, "1. Time Out. If as found work area radiological conditions are not as expected for the task, or if conditions change during the course of work such that work will not be able to be performed as planned: a. ensure the site is in a safe condition, b. Halt the work being performed, c. Notify the following of the conditions encountered: Radcon Supervisor, radiological engineer; project superintendent; Project Radcon Manager. d. Determine if it is safe to continue work using existing procedures, instructions, RWP, JHA, etc....f. Receive permission from the Project Superintendent (with concurrence from the Radcon Supervisor and Radiological Engineer) to continue work."

Discussion:

The receipt survey (RSR-ERDF-09-0498) found no contamination on the IXC waste package. During the pre-job for ERD-08-3-18-001, the Responsible Manager stated, if contamination is found, the response is to regroup. Contamination was found on Lampson's trailer, RCTs initiated the Stop, Warn, Isolate, Minimize, and surveyed hand and foot surveys of themselves and laborers, continued surveying and deconned while notifications were being made. On May 11, WCH Radcon Manager and ERDF Lead stated the RCT did not take a time out in accordance with RC-1-5.1 because they were responding to a radiological spill in accordance with RC-200-13.6. Contrary to the instructions in the pre-job and RC-200-13.6 Step 6.4, decontamination of the trailer occurred without regrouping and development of a recovery plan with input from the appropriate individuals.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F06

Release Surveys on Lampson's Trailer were not documented. (OA 22910)

Requirements:

49 CFR 177.843(a), states, "Each motor vehicle used for transporting Class 7 (radioactive) materials under exclusive use conditions in accordance with 173.427(b)(3) or (c) or 173.443(c) of this subchapter must be surveyed with radiation detection instruments after each use. A vehicle may not be returned to service until the radiation dose rate at every accessible surface is .005 mSv (.5 mrem per hour) or less and the removable (non-fixed) radioactive surface contamination is not greater than the level prescribed in 173.443(a) of this subchapter."

Craft Work Package, ERD-08-03-18-001, Offload Loads Classified as Non-Critical Lifts, Restoration Section, states in part, "RCT performs necessary RAD surveys on trailer and drive up to CTA for transport release."

RC-200-6.2, *Posting Radiological Areas*, Revision 3, Section 6.8. Item 3, states in part, "When acting as temporary posting... The RCT's responsibilities include, but are not limited to the following... Ensure all required surveys are performed (e.g., personnel survey, material release, down-posting, etc.)"

Discussion:

Work progress survey RSR-ERDF-09-0508 was taken on the Lampson trailer following off-load of the IXC, and contamination was found. Per the personnel statement, one RCT acted as a temporary posting for a Contamination Area. The trailer was deconned. RSR-ERDF-09-0508 documents the in process survey and decon, but material release surveys are not documented as required by RC-200-6.2. From the RCT personnel statement, the shipper requested no outgoing survey. The IXC was shipped as Class 7 under Exclusive Use, therefore 49 CFR 177.843 applies. Additionally, the ERD-08-03-18-001 requires surveys including transport release. From the RCT personnel statement, it appears improved coordination/input from the waste transportation specialist is necessary on what release surveys are required.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F07

Radiological Work Permit ERDF-09-0001 did not include special instructions for opening/cutting into IXC waste package. (OA 22910)

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."

10 CFR 835.1102(a), states, "Appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions."

RC-1-5.1, *Conducting Radiological Work*, Revision 2, Section 5.0, Item 1, states in part, "Written authorization, such as a Radiological Work Permit (RWP)...In addition, an RWP is required for opening of packaged radioactive material."

Waste Shipping and Receiving Plan, OHC-RP-W0032, IXC and Sand Filter Disposal, dated March 9, 2009, Section 1.9, states, "Radiological hazards are comprised of personnel exposure to ionizing radiation and the potential for personnel to become contaminated. Radiological hazards are mitigated via strict adherence to approved facility RWPs."

Discussion:

During execution of the work involved with off-load of an IXC at ERDF, several holes were cut into the waste package, and surveys were taken. OHC-RPW0032 specifies that one of the hazards as the potential for personnel contamination. Contrary to the requirements above, ERDF-09-0001 did not contain special instruction for cutting into the plastic confinement of the waste package, and appropriate controls were not in place to prevent the spread of contamination.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F08

Changes to RSR-ERDF-09-0508 were not dated. (OA 22910)

Requirement:

RC-100-7.1, *Managing Radiological Records*, Revision 1, Section 6.1, Quality Standards, Step 3 states in part, "If corrections to a record are needed, the individual making the correction shall use a single line to strike through the error, and the corrected information (as needed), and initial and date the correction."

Discussion:

RSR-ERDF-09-0508 was signed and dated by the RCT on April 6 (this was the incorrect date) and by the Supervisor on April 7, 2009. On April 9, an "*" was added to four values, a clarification added that those readings were taken on a swept pile of contamination, the original RCT re-signed and dated the survey April 7, a second RCT signed and dated the survey April 7, and the RCT supervisor signed out the revised survey on April 9. Two changes are initialed, but none are dated making it difficult to determine this survey was updated. Contrary to the requirement of RC-100-7.1, the changes were not dated.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F09

The ERDF Traffic Pattern diagram is not being maintained current. (OA 23257)

Requirement:

Stoller Procedure No. 5-28, *Traffic Access Control Plan*, Section 3.2, states, "A schematic of the ERDF Traffic Pattern, which documents the traffic flow, including location of haul routes, traffic patterns, signage, and other features related to traffic control, will be maintained. An example of the ERDF Traffic Pattern is provided as Attachment 1. A copy of the current ERDF Traffic Pattern will be posted on the wall in the Stoller Administration Trailer (MO-481) or otherwise readily available."

Discussion:

Contrary to the requirement in Stoller Procedure 5-28, the ERDF traffic pattern is not being maintained current. The diagram in MO-481 does not reflect the current configuration of the haul roads, etc. The changes to patterns are discussed at the Plan of the Day.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F10

The parameter specified in Procedure D4-200-100-SOP-002, Rev 4, Record 1, Facility Compliance Data Sheet and Daily Report, for "Chlorine (mg/L) Finished Water" was incorrect. (OA 23164)

Requirement:

CRD 5480.19, Attachment 1, Chapter 16, C.2.j. states, "Procedures should be technically and administratively accurate (i.e., the instructions and information should be correct; referenced documents should be correctly identified; and necessary instructions should represent to guide the user when transferring between procedures)."

Discussion:

Although steps in Procedure D4-200-100-SOP-002, Rev 4, do not specify a value for the minimum chlorine level for finished water, it does specify that if chlorine residual readings are less than 0.2 mg/L, then the Department of Health needs to be contacted. As such, the FR questioned the minimum chlorine value of 0.02 mg/L specified in the data sheet for finished water and asked the operator if this was correct. The operator stated the data sheet was incorrect and should read 0.2 mg/L.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-003-F11

The copy of Procedure D4-200-100-SOP-002, Rev 4, at the work site did not have "Working Copy, verified current" stamped or written on it and signed/dated by the user or supervisor. (OA 23164)

Requirement:

Procedure PAS-1-1.1, Rev. 3, *Technical Procedure Development and Implementation*, Step 6.4.2 states, "If a copy of the procedure will be used to perform the work, the words "Working Copy, verified current" shall be stamped or written on the procedure cover page and signed and dated by the individual making the copy (e.g., Supervisor, STR)." Step 6.5.1.a. states, "The copy of the technical procedure has been verified to be the latest copy (e.g., latest revision and change order)."

Discussion:

The FR asked the operator how he verifies that he has on hand the most recent revision of the water plant operating procedure (reference use procedure). The operator stated he knows because if any changes are made, he would have to perform required reading on the changes to the procedure and then would make a copy of the revised procedure to have on hand. Procedure PAS-1-1.1, Rev. 3, *Technical Procedure Development and Implementation*, requires that the copy of the technical procedure has been verified to be the latest copy (e.g., latest revision and change order). If a copy of the procedure will be used to perform the work, the words "Working Copy, verified current" shall be stamped or written on the procedure cover page and signed and dated by the individual making the copy (e.g., Supervisor, STR).

Finding: S-09-OOD-RCP-003-F12

Whole body surveys should have been conducted once contamination was found on Lampson trailer. (OA 22910)

Requirements:

10 CFR 835.1102(d) Personnel shall be monitored as appropriate for the presence of surface contamination.

RC-200-13.6, Revision 2, *Response to a Radiological Spill*, Section 6.3.1.a, Perform whole body surveys for any workers exiting the area.

RWP ERDF-09-001, Revision 0, Exit survey requirements, Whole Body CA/HCA/ARA entry: Whole body shall be surveyed for alpha and beta-gamma contamination upon exit.

Discussion:

When contamination was discovered on the trailer, hand and foot surveys were conducted on the RCTs and laborers. FR observed the preparations for the lift, the lift, and the start of in progress survey on the trailer including removal of some of the plastic. 10CFR835.1102(d) states personnel shall be monitored as appropriate for the presence of surface contamination. This job preparation took several hours and numerous individuals were climbing on/off the trailer (including a laborer kneeling during operation of the air gun). When contamination was found, an RCT acted as a standing Contamination Area Boundary. Contrary to the requirements of 10CFR835.1102(d), the RWP, and Section 6.3.1.a of RC-200-13.6 whole body surveys were not conducted.

Observation: S-09-OOD-RCP-003-O01

Maintenance on the Leachate Collection and Recovery System is not timely (repeat). (OA 23257)

Discussion:

Numerous *Facility Out of Service* tags are hanging on various components of the leachate system. The differential pressure gauge across the leachate filter was off-scale during the February and March leachate transfers, and finally tagged out of service on April 15. Stoller Procedure 5-35 states, if gauge is reading over 35 psig to change the filter. The Stoller Operations Manager stated he needs to draft a work package. Four *Out of Service* tags have been on the control panel in the electrical room since June 2008. Two *Facility Out of Service* tags (ERDF F005 0015 and 0016, dated February 2009) were hanging on the leachate storage tank indicating the level transducer is not hooked up to the control panel. Lack of timely maintenance was discussed with the Deputy Operations Manager and the Project Director. Clearly a higher priority and visibility needs to be given to maintaining this important system.

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

Observation: S-09-OOD-RCP-003-O02

The senior management review of work packages for high risk work and the performance of mock-ups should both be of sufficient rigor to ensure the work instructions are of sufficient detail and proper sequence to meet management expectations. (OA 23008 – Discussion section below modified slightly from OA Discussion)

Discussion:

During performance of the final mock-up for 107N lower T-1 Tank isolation on April 21, the FR reviewed the TI in the work package. The work steps in the TI were such that the six inch sludge gate valve would be closed after the 3/8 inch sparge line was cut. This was not as discussed in the ALARA Level II review performed on April 20, nor as practiced during the mock-ups on April 21. During the ALARA review, it was specifically discussed that this gate valve would be shut or attempted to be shut prior to cutting any of the piping downstream of it. The FR pointed this out to the work supervisor and project manager and the TI was revised to allow the work steps in two sections of the TI to be worked concurrently and with any other section within the TI, in any sequence, and repeated as required, as directed by the work supervisor. This minor change to the TI alleviated the problem of the TI directing the 3/8 inch sparge line to be cut prior to shutting the six inch sludge gate valve by allowing the work supervisor full flexibility in performing the work steps. There was no issue by the FR in the competence of the work supervisor to complete the work steps in the manner expected by management and as practiced in the mock-up. However, some work instruction steps should be rigorous in their sequence when critical in nature, such as closing the sludge gate valve, and flexible in other noncritical steps when necessary. The FR would expect work steps for high risk work to be rigorously sequenced, adjusted during the mock-up evolutions (if necessary and with appropriate approval), and

performed in a step-by-step manner, rather than allowing full flexibility during performance of the work activity.

The TI was so flexible in sequence the work supervisor had his own separate hand written "procedure" that he had drafted and used during the mock-ups and actual performance of the work in 107N. Prior to the start of the work activity in 107N, the FR told the work supervisor and project manager that a working copy of the TI was required to be in 107N with the supervisor since it was not apparent to the FR that this would otherwise have occurred. So, the TI and hand written "procedure" was with the work supervisor during performance of the lower T-1 Tank isolation.

Allowing full flexibility in TIs for high risk work, especially after a specific sequence is briefed during a Level II ALARA review, is counter to the "disciplined operations" WCH is trying to achieve. Since there is no procedure developed for senior management reviews, it is not clear to the FR what the expectations are for such a review of a work package. At a minimum, the TI should be verified to contain the proper level of detail and sequence to meet the rigor expected by management and as discussed in ALARA reviews.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-003-003

Onsite Waste Tracking Form (OWTF) information did not contain required information, and the date disposed was incorrect. (OA 22910)

Discussion:

OWTF 600A-09-0362 was utilized to dispose of the material from the IXC decontamination effort. The Radiological Logs and personnel statement state the material disposed was completed on April 7; and the OWTF lists April 8. The OWTF had no initials for disposal, stated the transporter was WCH, and stated the 70' lift was utilized. OWTFs are a quality record and information needs to be accurate, and OWTFs completed prior to disposal.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-003-004

Stoller Procedure No. 5-50, Landfill Cell Operations Procedure, was not updated to include the Posi-Shell application using the attachment. (OA 23257)

Discussion:

Stoller Procedure No. 5-50, *Landfill Cell Operations Procedure*, FCN#3, Section 5.14, Soil Fixative Application, provides instruction on the how to use Posi-Shell. Recently, a

posie shell attachment to a bulldozer was added; however, the procedure was not updated to address the attachment.

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

Observation: S-09-OD-RCP-003-O05

Opportunities for improvement exist with WO-100-3.3, Equipment Maintenance. (OA 23257)

Discussion:

WCH Procedure WO-100-3.3, *Equipment Maintenance*, covers maintenance on WCH transport trucks. The following opportunities for improvement were found:

- Section 6.2.2, last bullet, refers to Section 6.2, but should refer to Section 6.3.
- Attachment 4 contains a copy of Exhibit "E" Technical Specification for Inspection and Maintenance of Transport/Shuttle Trucks. The approved/signed off version is not attached. The attached version appears to have the same content but is formatted differently.
- The Washington State Patrol Quarterly inspections for January 2009 were not in the files.
- Location of records for required receipt inspections and documentation prior to placing into service should be reviewed. Receipt inspections (mechanics and Project Safety Representative) could not be located for Trucks 032, 034, 035, 036. Additionally, no documentation is in the maintenance files for all the repair work that has been completed to repair the welds, etc.

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

Good Practice:

Waste Management Officer provided mentoring to technician while implementing a revised procedure. (OA 22910)

Discussion:

On April 21, a leachate transfer was conducted using a revised version of Stoller Procedure 5-50. During the preparations for transfer of leachate, the Waste Management Officer worked with the technician reading each step aloud and ensured each step was completed as written.

Contractor Self-Assessment:

The WCH FY08 and FY09 Self-Assessment & Surveillance Schedules and Integrated Assessment Schedules were reviewed, as well as a select number of self-

assessments/surveillances related to procedure content and use. In addition, an FR attended the April 21, 2009, WCH monthly CONOPS Committee meeting, which contained an agenda item on work package/procedure use self assessments/ surveillances.

The number of completed and scheduled self-assessments/surveillances focusing on procedure content and use appears adequate. This is mainly due to WCH's self-identification of a lack of scheduled self-assessments that were focused on procedure use, resulting in the addition of scheduled self-assessments for this current quarter. The results of the WCH CONOPS quarterly (Q1-FY09) management assessment identified that while CONOPS assessments are being conducted as scheduled, they were not necessarily targeted to address weaknesses being identified with procedure use in the field. As a result, the performance of a procedure use self assessment/surveillance was added to each WCH project schedule to be completed the third quarter of FY09. In addition, the CONOPS Committee has developed lines of inquiry for technical procedure and work package use surveillances and developed a set of CONOPS expectations regarding procedure use.

The selected WCH self-assessments and surveillances reviewed by the FR appeared thorough. Where issues were identified in the self-assessments, there was a traceable path to an Issue Form and the proposed or completed corrective actions.

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

Management Debriefed:

J. Armatrout, WCH
C. Ames, WCH
D. Boone, WCH
B. Covert, WCH
T. Foster, WCH
R. Skwarek, WCH
B. Smith, WCH
M. Tavelli, WCH



Department of Energy
Richland Operations Office
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Richland, Washington 99352

JUN 29 2009

09-SED-0140

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
S-09-SED-KBASINS-STP-020, SLUDGE TREATMENT PROJECT (STP) TESTING IN
MAINTENANCE AND STORAGE FACILITY

The purpose of this letter is to transmit Surveillance Report S-09-SED-KBASINS-STP-020, STP Testing in Maintenance and Storage Facility. There are no concerns, findings, or observations; therefore, no action is required for this report. However, there is one significant good practice. 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 that reads "Jan Osso".

Jan Osso
Contracting Officer

SED:BEH

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
S. M. Kelley, CHPRC
DNFSB

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

Division: Safety and Engineering Division (SED)

Surveillant: Burton E. Hill

Surveillance Number: S-09-SED-KBASINS-STP-020

Date Completed: June 17, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Sludge Treatment Project (STP) testing in Maintenance and Storage Facility (MASF)

Title: Sludge Testing

Guide: NA

Surveillance Scope:

K Basins sludge retrieval, treatment, packaging, and shipping project is at the CD-0 phase where the conceptual design is being developed. This surveillance looked at the testing of concepts to retrieve sludge from engineered containers in KW Basin and transfer it to a transportation container.

Surveillance Summary:

Four retrieval tests were monitored in the development of devices that mobilize, retrieve, and transfer sludge. The test criterion to be met for these four tests was to average 5 percent solids during retrieval and transport.

1. Two tests were performed on a CHPRC developed retrieval device, one with engineered container sludge simulant and one with settler tube sludge simulant. The device more than met the criteria with the engineered container sludge simulant, but could not retrieve the settler tube sludge simulant.
2. Two tests were performed on a Xago developed retrieval device, one with engineered container sludge simulant and one with settler tube sludge simulant. The device averaged over 10 percent with the engineered container sludge, and just below five percent with the settler tube sludge. As a result, the Xago was selected for further development.

During all of the tests done, the test procedures were carefully developed and followed. No errors were made during the testing and all of the data obtained was valid. The test equipment and auxiliaries met the requirements for the testing performed. The surveillant found in general that the conduct of the testing was performed in accordance with procedures and that the results of the testing are valid. There are no concerns, findings, or observations. However, the deliberant manner in which the test plan was developed and carried out, the use of proper equipment supporting testing, and the outstanding overall formality of the testing results in this surveillant documenting a good practice.

Surveillance Results:

No concerns, findings, or observations resulted from this surveillance activity. One good practice is documented.

Good Practice:

Choosing the MASF facility to conduct STP conceptual testing has many benefits that improved the ability to design and create excellent test mockups. It provided the needed space above and below the main floor. Cranes are available to move the large equipment such as large tanks, and to support smaller loads such as the top retrieval devices. The facility has the needed floor space, heating, ventilation, air conditioning, lighting, compressed air, electrical power, and water for the testing. This facility contributed greatly in the preparation, and conduct of the testing.

The test engineer had carefully developed the test plan and procedure with all of the data sheets. During the time of the actual tests he ensured that the immediate area was restricted to only those performing the test. He ensured that the system was properly lined up both mechanically and electrically. The performers were well acquainted with the test and formally took orders and instruction from the test engineer. During one of the tests the test engineer determined the need to make some changes to improve the outcome, but continued the test to completion and then formally followed the process for making changes. Overall the formality was excellent, the tests went as planned and the data gathered was valid.

Contractor Self-Assessment: Contractor Self-Assessments have not been conducted.

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

Management Briefing:

Richard Raymond, CHPRC



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

09-OOD-0065

JUN 30 2009

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 – PROCEDURE CONTENT AND USE CORE
SURVEILLANCE OF CHPRC FACILITIES AND PROJECTS**

A Procedure Content and Use Core Surveillance was performed at various CHPRC Facilities and Projects from January 2009, through May 8, 2009. The surveillance resulted in 14 Findings, 13 Observations, and one Good Practice. The Findings and Observations identified are minor in nature and severity but reflect field discrepancies, procedural errors, performance errors, and process improvement opportunities at most facilities reviewed. Multiple issues accrued in the following areas:

- Procedure Development: Eight Findings, 11 Observations
- Procedure Use: Five Findings
- Other Miscellaneous: One Finding, Two Observations

The issues and opportunities for improvement in the area of Procedure Development appear to be consistent and recurring across the site. Two Findings were also specifically identified within PRC-PRO-MS-589; no clear method identified for procedure formatting (S-09-OOD-CHPRC-003-F01) and requirements are not identified for changes that have been issued greater than a pre-determined time period (S-09-OOD-CHPRC-003-F02). CHPRC is encouraged to identify methods to address formatting and prevention of these recurring issues.

Contractor self-assessments were reviewed at the various CHPRC facilities. In general, it appears an adequate self-assessment program is in place for Procedure Content and Use. However, one project identified that no Procedure Content and Use self-assessments were performed and none were planned for FY 2009.

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.

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
09-OOD-0065

-2-

JUN 30 2009

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,



Jan Osso
Contracting Officer

OOD:SLD

Attachments

1. Roll-up Evaluation
2. Surveillance S-09-OOD-LWFS-004
3. Surveillance S-09-OOD-SWOC-003
4. Surveillance S-09-OOD-BOS D&D-003
5. Surveillance S-09-OOD-GPP-002
6. Surveillance S-09-OOD-SNF-003
7. Surveillance S-09-OOD-PFP-004

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

**Procedure Content and Use - Core Surveillance
Roll-up Evaluation**

Procedure Content and Use Core Surveillances were performed at all of the CHPRC Facilities and Projects from January 2009, through May 8, 2009. The objective of this surveillance was to evaluate the effectiveness of the contractor's program for development and use of procedures as well as verify implementation of requirements of DOE O 5480.19, as supplemented by CRD O 5480.19, Change 2 (Rev 3). The surveillance resulted in the identification of 14 Findings, 13 Observations, and one Good Practice. Overall the surveillance indicated satisfactory performance and knowledge relative to procedure development, content, and use. Six surveillances are attached.

As a product of the Procedure Content and Use Core Surveillance two Findings were identified within PRC-PRO-MS-589: 1. No clear method identified for procedure formatting and 2. Requirements are not identified for changes that have been issued greater than a pre-determined time period. The issues were identified at the K-Basins project, but are applicable across the CHPRC and are described in more detail below.

Finding: S-09-OOD-CHPRC-003-F01

PRC-PRO-MS-589 does not provide a clear method for procedure formatting.

Requirement:

DOE O 5480.19, Chapter XVI, Section C.1. states in part, "to ensure consistency among operations procedures, the methods for developing new procedures, including procedure formats, should be clearly defined. Administrative procedures and/or writers' guides should direct the development and review process for procedures."

Discussion:

The PRC-PRO does instruct the procedure writer as follows "Ensure procedure meets the guidelines for format and content;" however this step does not link or refer the writer to any specific template or guidance. Appendix E does provide guidelines relative to content but again does not link or refer you to any template or equivalent document from a formatting perspective. In section 3.3 step 4 the writer is instructed to prepare a draft of the new procedure or procedure change/revision using the templates available on CHPRC Docs Online. The templates are not yet available on Docs Online. An interview with the 100 K Technical Writer Lead revealed that there is a non-issued document that is being utilized from a format perspective. However, this procedure has not been issued.

The cancelled 100K Project level 3 document, PROC-DI-001, provided a clearly defined formatting method.

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

Contractor self-assessments were reviewed at the various CHPRC facilities. In general, it appears an adequate self-assessment program is in place for Procedure Content and Use. However, one project site identified that no Procedure Content and Use self-assessments were performed and none were planned for the site in FY 2009.

Finding: S-09-OOD-CHPRC-003-F02

PRC-PRO-MS-589 does not have a requirement describing the actions to take for changes that have been issued greater than a predetermined time period.

Requirement:

DOE O 5480.19, Chapter XVI, Section C3.c. states in part, "been outstanding for an extended period (e.g., greater than 6 months) or when a procedure has been affected by several changes (e.g., more than five). All currently effective procedure changes should normally be incorporated when the procedure is revised."

Discussion:

PRC-PRO-MS-589 does not have a requirement describing the actions to take for changes that have been issued greater than a predetermined time period. There is a provision in section 3.3 that provides a trip point for the number of changes that would require a revision but does not contain any trip points regarding the "age" of the change.

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

Below is a listing of the Findings, Observations, and Good Practices identified by this Core Surveillance oversight:

- | | |
|-------------------------------|---|
| S-09-OOD-CHPRC-003-F01 | PRC-PRO-MS-589 does not provide a clear method for procedure formatting. |
| S-09-OOD-CHPRC-003-F02 | PRC-PRO-MS-589 does not have a requirement describing the actions to take for changes that have been issued greater than a predetermined time period. |
| S-09-OOD-LWFS-004-F01 | Records validating that the post maintenance leak check was performed were absent. |
| S-09-OOD-LWFS-004-F02 | Project implementing document for Procedure Use was not maintained in Conduct of Operations Applicability Matrix. |
| S-09-OOD-SWOC-003-F01 | A few procedure content and use issues were identified relative to performance and documentation of Work Package 2X-08-03593. |

S-09-OOD-GPP-002-F01	The 200-PW-1 Soil Vapor Extraction Operational Test Procedure (work package/instruction GW-09-00162) was not entirely technically accurate and was not in some instances changed or conducted in accordance with accepted methodologies. The K West Pump and Treat Acceptance Test Procedure (work package/instruction GW-09-1191) was also changed inconsistently from work instruction direction.
S-09-OOD-GPP-002-F02	Soil Groundwater Remediation Project (SGRP) had not adequately defined a set of controls for restricted use validation of operating procedures other than HNF-PRO-12115, <i>Work Control</i> , processes. The method(s) observed for the K Expansion (KX) Pump and Treat Facility compromised several of the processes relied upon to establish and maintain safe and controlled operations.
S-09-OOD-GPP-002-F03	Two issues identified previously in an Operational Awareness (OA) report were again identified at 100-HR-3 Pump and Treat Facility.
S-09-OOD-SNF-003-F02	Referenced documents in ER-SNF-002 were incorrectly identified.
S-09-OOD-SNF-003-F03	Documents reviewed had either exceeded the allowed number of changes prior to revision or the changes had exceeded 6 months since initially issued without a revision being issued.
S-09-OOD-PFP-004-F01	Clarity Required to Complete Data Sheets.
S-09-OOD-PFP-004-F02	Working out of Sequence.
S-09-OOD-PFP-004-F03	Missing Work Step in Filter Room 310.
S-09-OOD-PFP-004-F04	Real-time notification to the Plutonium Finishing Plant (PFP) RL Facility Representatives did not occur for a few issues.
S-09-OOD-LWFS-004-O01	POP-30-003 did not provide a clear understanding of procedure applicability.
S-09-OOD-SWOC-003-O01	Similar T-Plant Alarm Response Procedures Classified As Reference And Continuous Use.

S-09-OOD-SWOC-003-002	PRC-PRO-MS-589 Appendix D Lists Technical Safety Requirement (TSR) Surveillance Data as a Criteria for both Continuous and Reference Use Procedures.
S-09-OOD-SWOC-003-003	Solid Waste Operations Complex Drum Venting Procedures Which Operate TSR Related Equipment are Classified as Reference Use.
S-09-OOD-BOS D&D-003-001	Procedure Steps not Conforming to DOE O 5480.19.
S-09-OOD-BOS D&D-003-002	Minor Issues Identified during Interviews.
S-09-OOD-BOS D&D-003-003	Building Emergency Directors Emergency Procedure Book contains Outdated Documents.
S-09-OOD-GPP-002-001	Several labeling discrepancies were identified at the K Expansion (KX) Pump and Treat Facility.
S-09-OOD-GPP-002-002	Format and/or content discrepancies were identified with the draft K Expansion (KX) Pump and Treat Facility operations procedure, GRP-FS-04-X-100-001, Rev 0, Change 0, Draft.
S-09-OOD-GPP-002-003	The implementing documents specified in the SGRP Conduct of Operations applicability matrix for DOE O 5480.19, Attachment I, Chapter XVI, Section C.2, did not contain adequate specificity to assure procedure content requirements would be met.
S-09-OOD-GPP-002-004	The work instruction for performing modifications to KX Pump and Treat Facility relief valve headers did not provide optimal work isolation instructions.
S-09-OOD-PFP-004-001	Potential Mis-Use or over-use of the Note for performance of work concurrently and/or independently.
S-09-OOD-PFP-004-002	Procedures cancelled since CHPRC transition may be useful guidance for conduct of operations enhancement effort ongoing at PFP.
S-09-OOD-SWOC-003-GP01	Operators requested clarification prior to proceeding when procedural steps were in question or were not clear to them.

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: CH Gunion

Surveillance Number: S-09-00D-LWFS-004

Date Completed: May 5, 2009

Contractor: CH 2M HILL Plateau Remediation Company (CHPRC)

Facility: Liquid Waste and Fuel Storage (LWFS)

Title: Procedure Content and Use

Guide: Lines of Inquiry Established in Core Surveillance Guide OPS 9.16

Surveillance Scope:

The objective of this surveillance was to evaluate the effectiveness of the contractor's program for development and use of procedures. The Facility Representative (FR) reviewed selected operating, surveillance or testing, and maintenance procedures, and observed the use of procedures in the facility. This surveillance provided the basis for evaluating contractor performance and for establishing compliance with specific DOE requirements.

Surveillance Summary:

In general, procedure content and use practices at LWFS facilities were acceptable. The FR reviewed selected LWFS operations and maintenance procedures for the Effluent Treatment Facility (ETF), Waste Encapsulation and Storage Facility (WESF), Canister Storage Building (CSB) and Interim Storage Area (ISA), observed work involving those procedures and interviewed personnel. Some areas of needed improvement were evident through this surveillance. The following two Findings and one Observation resulted from this surveillance:

- **S-09-OOD-LWFS-004-F01** - Records validating that the post maintenance leak check was performed were absent.
 - **S-09-OOD-LWFS-004-F02** - Project implementing document for Procedure Use was not maintained in Conduct of Operations (CONOPS) Applicability Matrix.
 - **S-09-OOD-LWFS-004-O01** - POP-30-003 did not provide a clear understanding of procedure applicability.
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Surveillance Results:

Finding: S-09-OOD-LWFS-004-F01

Records validating that the post maintenance leak check was performed were absent. [OA #22785]

Requirement(s):

DOE O 5480.19 Conduct of Operations Requirements for DOE Facilities:

Chapter XVI Operations Procedures, paragraph C.2.j. states, "Procedures should be technically and administratively accurate."

C.2.r. states, "Component or system shutdown and restoration requirements following shutdown or a surveillance or test activity should be specific and controlled by the procedure."

Chapter VIII Control of Equipment and System Status C.7. states in part, "Any testing following maintenance should be specified on the maintenance order or accompanying documentation (e.g., maintenance procedure). The operations supervisor should ensure that testing appropriately proves equipment operability."

Discussion:

The FR attended the pre-job briefing, reviewed work package EL-07-03163, interviewed personnel and observed ETF purge water filter change out. EL-07-03163 was a generic work document covering several filter systems for ETF. ETF Operations and support personnel performed to Resolution / Retest work instructions for each filter system. Section 2.12 directed change out of purge water filters 59A-FL-004, 005, and 006. Personnel performed to stated instructions through 2.12.3 - CHANGE THE PURGEWATER FILTERS. Section 2.13 - POST-MAINTENANCE LEAK CHECK, was performed by Operations personnel when the next process tanker charged the system with effluent.

Section 2.13 described the leak check process but did not appear to be controlled in an

operations procedure. The record of leak check performance was typically not recorded in the Job Control System (JCS) J-5 as directed by step 2.13.3, NOTE THE RUN TIME ON JCS WORK RECORD. The check also was not included in an operations procedure for first time charging of the system after filter change out.

Work package EL-07-03163 contained a J-5 record of filter change outs from mid 2007 through present day. Filters were changed approximately once per week. Recordings of leak check performance only occurred a few times (5-10). Three work instruction steps were to be performed by Operations personnel once the next tanker was available to provide water to charge the system. These steps were necessary to complete the post-maintenance leak check. There was no record for performance of most checks.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-LWFS-004-F02

Project implementing document for Procedure Use was not maintained in Conduct of Operations (CONOPS) Applicability Matrix. (OA#23087)

Requirement(s):

HNF-RD-8457 Requirements Management, Section 4.1 General Requirements, Item 12 states, "Implementing documents shall be maintained under change control."

DOE O 5480.19 Chapter XVI C 7. Procedure Use states in part, "The requirements for use of procedures should be clearly defined and understood by all operators."

Discussion:

Waste Stabilization and Disposition (WSD) CONOPS Applicability Matrix HNF-29047, referenced WMP-200, Section 2.16 for the Procedure Use implementing document. WMP-200 Section 2.16 did not exist in the WSD database. The document was discontinued and replaced without updating the matrix.

Appropriate procedure use was evident from FR observation of LWFS operations and maintenance personnel. LWFS personnel understood the concepts of "step-by-step" and "reference use" as defined in DOE O 5480.19. There were no issues related to "use" in the application of facility procedures.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-LWFS-004-001

Procedure POP-30-003 did not provide a clear understanding of procedure applicability. (OA#22982)

Discussion:

The FR accompanied an ETF Nuclear Chemical Operator (NCO) on "outside" rounds and reviewed the rounds procedure. The NCO performed to Plant Operations Procedure POP-30-003, ETF Outside Operator Rounds. This set of operations duties included status parameter checks at pump stations, Liquid Effluent Retention Facilities (LERF), valve boxes and sumps. In addition, the NCO checked various enclosures (gates, locks, hinges, fencing) for damage, assessed piping, components and berms for leaks or damage, determined postings integrity and checked for animal intrusions. Rounds tour included locations in 200 East and 200 West.

No unusual readings, leaks or damage were identified during the rounds observed by the FR. The NCO performed rounds in a business-like and professional manner. The NCO was knowledgeable of Treated Effluent Disposal Facility (TEDF) mission, systems and components and performed to the procedure.

FR review of POP-30-003 determined that, for the most part, the procedure served the purpose for which it was written. However, the PURPOSE AND SCOPE section of the procedure did not provide the reader a clear picture of the overall task of outside rounds.

The PURPOSE AND SCOPE section of POP-30-003 included one sentence; "This procedure provides instructions for accomplishing the Effluent Treatment Facility (ETF) outside operator (LERF) rounds and turnover." While scope could be construed as readily apparent to experienced ETF personnel in this sentence, the intent of DOE O 5480.19 was not adequately met.

DOE O 5480.19 Chapter XVI paragraph 2.a. states, "The scope and applicability of individual procedures should be readily apparent."

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

Contractor Self-Assessment:

Specific contractor self-assessment of Procedure Content and Use has not been performed by the CHPRC to date (contract inception to date of this surveillance). FR review of the current Integrated Evaluation Plan showed no Procedure Content and Use assessments planned for FY 2009.

There was one Management Assessment (MA) performed in February and March of 2009, related to DOE-0336, Hanford Site Lockout / Tagout procedure implementation. While not specific to DOE O 5480.19 Chapter XVI, some elements of procedure use assessment were evident.

In that no Procedure Content and Use self- assessments were performed and none were planned for LWFS in FY 2009, this FR's determination of self-assessment adequacy was negative.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:
Monica Kembel, CHPRC

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

Division: Operations Oversight Division (OOD)

Surveillants: JE Trevino, DH Splett

Surveillance Number: S-09-OOD-SWOC-003

Date Completed: May 13, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Solid Waste Operations Complex (SWOC)

Title: Procedure Content and Use

Guide: Lines of Inquiry Established in Core Surveillance Guide 9.16

Surveillance Scope:

The objective of this surveillance was to evaluate the effectiveness of the contractor's program for development and use of procedures. The surveillants reviewed selected operating, alarm response, maintenance procedures and work packages and observed use of the procedures in the facility.

Surveillance Summary:

The Facility Representatives reviewed procedures and work packages and observed performance of work in accordance with procedures and other work and operating documents. One Finding, three Observations, and one Good Practice were identified:

- **S-09-OOD-SWOC-003-F01:** A few procedure content and use issues were identified relative to performance and documentation of Work Package 2X-08-03593.
- **S-09-OOD-SWOC-003-O01:** Similar T-Plant Alarm Response Procedures Classified as Reference and Continuous Use.
- **S-09-OOD-SWOC-003-O02:** PRC-PRO-MS-589 Appendix D Lists Technical Safety Requirements (TSR) Surveillance Data as a Criteria for both Continuous and Reference Use Procedures.

- **S-09-OOD-SWOC-003-003:** SWOC Drum Venting Procedures Which Operate TSR Related Equipment are Classified as Reference Use.
 - **S-09-OOD-SWOC-003-GP01:** Operators requested clarification prior to proceeding when procedural steps were in question or were not clear to them.
-

Surveillance Results:

Finding: S-09-OOD-SWOC-003-F01

A few procedure content and use issues were identified relative to performance and documentation of Work Package 2X-08-03593. [OA 23423]

Requirements:

DOE 5480.19, Chapter XVI, Section C.7, Procedure Use, states in part, "Facility operation should be conducted in accordance with applicable procedures that reflect the facility design basis."

DOE 5480.19, Chapter XVI, Section C.2, Procedure Content, paragraph e. states, "Procedures should be easily understood, and actions should be clearly stated."

DOE 5480.19, Chapter XVI, Section B states in part, "Procedures are a key factor affecting operator performance. Appropriate attention should be given to writing, reviewing, and monitoring operations procedures to ensure the content is technically correct and the wording and format are clear and concise in accordance with NUREG-0899. Although a complete description of a system or process is not needed, operations procedures should be sufficiently detailed to perform the required functions without direct supervision. Consistency in procedure format, content, and wording is essential to achieve a uniformly high standard of operator performance. Operators should not be expected to compensate for shortcomings in such procedures as poor format or confusing, inaccurate, or incomplete information. Instead, procedures should be written in such a way that they can be easily used without making mistakes."

Discussion:

A few procedure content and use issues were identified relative to performance and documentation of Work Package 2X-08-03593, *Retrieve Boxes in 218-W-4B, Trench 7* and in performance of Attachment #1, Critical Lift Plan (for the same work package).

- One of the critical lift plan attachments performed on April 30, was not signed off as "Critical Lift Complete" (print, sign, and date). The Critical Lift Plan (Attachment #1) is written to be used over and over again each time a critical lift of waste boxes is performed.
- Box dimension data was not filled in on several critical lift sketches used for critical lifts performed by the work package. Attachment #1, Critical Lift Plan, Section 6.0 states in part, "Sketches F1 and F2 have been prepared for this critical lift. Sketch F1 is the loading

diagram." Step 6.3 of the Critical Lift Plan states, "INSERT the forklift forks as far as possible under the waste container. ENSURE the load center of gravity (CG) is no more than 52" from face of forks as shown on the load diagram (critical lift Sketch F1)." Sketch #F1 contains a place to write in box dimensions and identifies a maximum waste container weight. The waste box dimensional data was not filled in on three of approximately ten data sheets used in recent months.

- Integration of some of the work package and Critical Lift Plan data sheets and sketches is inconsistent, unclear, or confusing. The Critical Lift Plan data sheets and sketches do not have a place to document which box is being moved by the critical lift plan. This makes it difficult to determine which data sheets document various lifts made on various dates. Operating personnel have written box numbers and box weights on some of the critical lift plan data sheets and sketches but some do not contain this information.
- The work record is inconsistently filled out. On some dates the work record identifies what work was performed and even what boxes were retrieved or moved (and by critical lift). On other dates, the work record does not record the work that was accomplished. On some dates the work record simply states that a prejob was completed but does not record any critical lift of boxes while data sheets identify that critical lifts / movements of boxes were made.

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

Observation: S-09-OOD-SWOC-003-001

Similar T-Plant Alarm Response Procedures Classified as Reference and Continuous Use.
[OA 22783]

Discussion:

T-Plant Alarm Response Procedure ARP-D-463-00003, *Respond to Operating Gallery*, Section 18 Alarms, is designated as a Reference Use procedure. Among other alarms this procedure directs the response actions to the Canyon Low DP Alarm. Canyon low differential pressure is a TSR/Limiting Condition for Operation (LCO) driven alarm.

Similar Alarm Response Procedure ARP-D-463-00001, *Respond to 2706-T Facility Alarm*, is designated as a Continuous Use procedure. This procedure also directs the response to TSR/LCO driven low differential pressure alarms in the 2706 waste processing areas.

PRC-PRO-MS-589, *CH2M Hill Plateau Remediation Company Procedures*, Rev 0, Appendix D, *Criteria for Procedure Use Designations*, discusses the criteria for designating procedures as Continuous or Reference use. Factors to be considered when designating a procedure as Continuous Use include whether there is a high risk to the facility or equipment if an error occurs. Reference Use procedures cite a medium risk to the facility or equipment if an error occurs. While improperly responding to a facility alarm could result in damage to the facility or equipment, particularly alarms associated with TRS/LCO requirements, and whether that is a medium or high risk may be somewhat subjective, similar procedures responding to similar alarm conditions should have the same level of use designation.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-SWOC-003-002

PRC-PRO-MS-589 Appendix D Lists Technical Safety Requirements (TSR) Surveillance Data as a Criteria for Both Continuous and Reference Use Procedures. [OA 23189]

Discussion:

PRC-PRO-MS-589, *CH2M Hill Plateau Remediation Company Procedures*, Rev 0, Appendix D, *Criteria for Procedure Use Designations*, discusses the criteria for designating procedures as Continuous or Reference use. Having a procedure contain TSR surveillance data is listed as a criteria for both Continuous Use and Reference Use procedures. Since TSR level issues are among the most serious issues effecting safe operations of a facility, a procedure which contains TSR surveillance data should be designated in the Continuous Use category. At the very least it should not be listed as a criteria for both categories.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-SWOC-003-003

SWOC Drum Venting Procedures Which Operate TSR Related Equipment are Classified as Reference Use. [OA 23409]

Discussion:

T-Plant procedure DO-100-055, *Operation of Drum Venting Assembly*, and Solid Waste Storage and Disposal procedure SW-100-154, *Drum Venting in mDVS*, are both classified as Reference Use procedures. These procedures both invoke TSRs from the Solid Waste Operations Complex safety basis during the process of venting drums. For example, procedure SW-100-154 step 5.6.9 requires specific TSR related actions to be taken if hydrogen gas concentrations are above a certain level. Procedure DO-100-055 directs the installation of certain TSR related equipment such as bonding straps in step 5.1.4.

Appendix D, *Criteria for Procedure Use Designations*, of PRC-PRO-MS-589, *CH2M Hill Plateau Remediation Company Procedures*, provides guidance on factors which may result in a procedure being designated Continuous Use or Reference Use. The guidance for Continuous Use includes "The procedure includes a hold point, a verification point, or manipulation of equipment related to TSR compliance." This criteria, along with the overall nature of venting drums, would suggest that these procedures should be Continuous rather than Reference Use procedures.

The criteria also includes the consideration as to whether or not the procedure is performed infrequently. While drum venting at T-Plant was once a routine operation the venting campaigns have decreased to the point where they could likely be considered as infrequent. This would be another factor in designating the drum venting procedure as Continuous Use.

RL Lead Assessor Closure Required:

YES [] NO [X]

Good Practice: S-09-OOD-SWOC-003-GP01

Operators requested clarification prior to proceeding when procedural steps were in question or were not clear to them. [OA 23422]

Discussion:

On two separate occasions, operating personnel had questions about the steps/requirements contained in procedures they were performing. In both occasions observed, the operators did not proceed until the questions were resolved by engineering. In both cases the questions or possible issues were brought to the attention of the Field Work Supervisor who contacted engineering. Engineering was contacted and the work was placed on hold until engineering arrived in the field. In both cases, engineering was able to resolve the issues satisfactory without revision to the procedure.

In one example, a critical lift procedure drawing (Sketch #F2, Work Package 2X-08-03593) identified the path to be taken by a forklift moving a waste box to an area for assay and then to the process area. Since the assay was not to be performed on that shift, the box was to be taken directly to the process area. The drawing did not show a path directly to the process area. Engineering was contacted. On arrival the engineer was able to show a note in the procedure that stated, "The container may be staged in the process area until it can be assayed." At a later time, the sketch was updated (pen & ink change) to add a flow path to and from the process area prior to assay for clarification purposes (the normal flow path after assay was already on the sketch).

It is good for operating personnel and their supervision to resolve questions and/or issues that personnel have relative to procedures prior to proceeding with procedural steps.

Contractor Self-Assessment:

CHPRC adopted the use of most of the PHMC and subcontractor procedures that were in use at the time of transition. Management Directive (MD) PRC-MD-001, *Transition of PHMC documents to PRC*, was written to provide interim guidance to CHPRC personnel on the use of documents and forms owned by the previous contractors. Considerable review of procedures has been performed by CHPRC during transition from PHMC. Procedures supporting the most significant and higher hazard work were reviewed during Hazard Review Board reviews prior to authorizing the work. CHPRC issued PRC-PRO-MS-589, *CH2M Hill Plateau Remediation Company Procedures* on April 13, 2009. This procedure defines the process for the preparation, review, approval, and use of procedures for CHPRC. CHPRC will be performing an Integrated Safety Management System Phase 1 verification later this fiscal year. Because of these activities and initiatives, contractor self-assessment is considered adequate in this area.

Contractor Self-Assessment Adequate:

YES [X]

NO []

Management Briefing:

S. L. Metzger, CHPRC

S. Mortensen, CHPRC

C. V. Phillips, CHPRC

D. G. Saucedo, CHPRC

T. C. Synoground, CHPRC

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

Division: Operations Oversight Division (OOD)

Surveillant: Ron Johnson

Surveillance Number: S-09-OOD-BOS D&D-003

Date Completed: April 30, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Central Plateau Surveillance & Maintenance (CPS&M), Fast Flux Test Facility (FFTF), Balance of Site (BOS) Deactivation & Decommissioning (D&D)

Title: Procedure Content and Use Surveillance

Guide: Lines of Inquiry Established in Core Surveillance Guide 9.16

Surveillance Scope:

The scope of this surveillance is to verify that the contractor is adequately implementing the development and use of procedures.

Surveillance Summary:

CPS&M group currently has seven facilities with FFTF undergoing a slow transition over to the CPS&M group. The BOS D&D organization is working on demolition activities associated with U-Plant ancillaries, 200 North and 200 West 7 Industrial areas. The procedures reviewed for work at FFTF were more complex in nature and aligned more closely with 5480.19 Chapter XVI requirements. Whereas, the procedures that supported work at CPS&M and BOS D&D organizations were written with more latitude.

The Facility Representative (FR) performed the following activities in order to evaluate CPS&M Programs:

Work activities:

- CP-09-01607; 222-B, Roof/Structure Inspection. (4/14/09);
- CP-09-01600; 202-S, Roof/Structure Inspection (4/14/09);
- CP-25010, U-Plant Exhaust Stack Air Flow Test (4/8/08);
- CP-25005, U-Plant Sand Filter Aerosol Test (4/8/09);
- CP-07-08096, Troubleshoot Canyon/Gallery D/Ps (4/21/09);
- 211-U Tank Farm work (4/13/09); and
- Building 2707 Demolition (4/7/09).

Reviewed the following procedures/work instructions:

- CP-09-01607; 222-B, Roof/Structure Inspection;
- CP-09-01600; 202-S, Roof/Structure Inspection;
- 4F-08-01656/M; Drain Mineral Oil from X-104 and X-308;
- 4F-06-06581/M; Remove and Dispose of PCB Transformer X-14;
- 4F-09-00330; Evaluate need, and install light covers to protect from dripping tar; and
- PRC-PRO-MS-589; *CH2M HILL Plateau Remediation Company Procedures*.

Reviewed the following documents:

- Training Completion Record Form A (PFP Technical Procedure Writer Checklist);
- CPS&M Safety Engineer ITEM Training Record;
- CPS&M Design Authority ITEM Training Record;
- CPS&M Technical Procedure Writer;
- Central Plateau Surveillance & Maintenance Administration Manual, FSP-3647, Section MS-2; and
- *CH2M HILL Plateau Remediation Company Procedures*, PRC-PRO-MS-589.

Interviewed the following personnel:

- Nuclear Chemical Operators (2);
- Field Work Supervisor (3);
- D&D Workers (2);
- BOS/PFP Procedure Lead; and
- Work Control Lead.

For Activity 1 – A review of randomly selected procedures was performed in order to evaluate the effectiveness of the contractor's program for development of procedures. Emphasis was placed on step sequencing, use of cautions and notes, interfacing between documents, and prerequisite usage in the procedure.

Procedures used by the CPS&M group were found to have fewer steps and less detail incorporated into the work instructions. Whereas, procedures used by the FFTF facility were found to be more rigid and complex in nature.

A review of CP-09-01607 and CP-09-01600 showed the work documents used fewer sections (i.e., Scope, Precautions and Limitations, and Instructions) in the body of the procedure but each section provided adequate information. Notes found in the body of the procedures contained pertinent information and were placed prior to the instruction step. Appropriate cross discipline reviews were found for the procedures audited by this FR.

A review of 4F-08-01656 and 4F-06-06581 showed signature points throughout the prerequisites and instruction sections. In some cases notes were not placed preceding the step to which it applied to, action steps were found hidden between notes, and actions were combined with notes to form a step (Observation 1).

For Activity 2 – Field observations were made to verify the understanding and use of the procedures. Interviews were performed on randomly selected personnel to evaluate the procedure user's knowledge of the facility process for use of procedures.

The FR observed work that included canyon surveillance activities, air flow testing of filters, and troubleshooting of canyon differential pressure anomalies. Steps in the procedures were written to the level of detail that would allow the person to perform the task with little difficulty. Craft personnel demonstrated procedural compliance when performing work that was observed. The Field Work Supervisor demonstrated knowledge of the procedure revision process when a procedural step had to be revised in order to perform filter testing at U-Plant. Appropriate engineering disciplines were brought in to incorporate the change to the procedure.

Personnel interviewed, demonstrated a knowledge of the differences between step-by-step and reference use procedures. Interviewees were asked questions related to using a "Continuous Use" procedure and if they come across a step in the procedure that was not able to be performed. Those interviewed stated they would stop the job and notify their supervisor if they encountered a problem with the procedure. A minor comment was captured during the interviews with one interviewee who was reluctant to stop work if the work scope changed and another person interviewed expressed his concern of newly hired D&D workers not having experience in working with procedures (Observation 2).

For Activity 3 – An evaluation was made to the adequacy of the contractor's procedure administration program. The FR reviewed CP S&M Administration manual for flow down requirements for procedure content and use. Section MS-2 of FSP-3647 provides a section that discusses adequate work instructions which refers to procedures, work packages and minor work tickets, but only on general terms. The CPS&M Work Coordinator stated CPS&M organization would follow the guidelines for procedure content and use that would be found in PRC-PRO-MS-589.

A random selection of subject matter experts (SMEs) (Ventilation and Safety Engineers) used to review procedures for the CPS&M organization showed both SMEs were qualified to perform that function. The training record for the procedure writer assigned to CPS&M organization showed that she is currently qualified as a procedure writer.

CPS&M organization does not have abnormal procedures but the emergency procedures were verified to have distinguishable features that would separate them from other

procedures. Outdated emergency procedures and phone contact list were found in the CPR Project Building Emergency Directors (BED) Emergency procedures book which is kept in the Shift Operations Manager work area (Observation 3).

In summary, this FR considers the Procedure Content and Use implementation for CPS&M and BOS D&D to be satisfactory and the activities appeared to meet requirements with only a few minor exceptions.

Three observations were identified:

- **S-09-OOD-BOS D&D-003-001** – Procedure steps not conforming to DOE O 5480.19.
- **S-09-OOD-BOS D&D-003-002** – Minor issues identified during interviews.
- **S-09-OOD-BOS D&D-003-003** – BED Emergency Procedure Book contains outdated documents.

Surveillance Results:

Observation: S-09-OOD-BOS D&D-003-001

Procedure steps not conforming to DOE O 5480.19 Guidelines. [OA 23114]

Discussion:

During a review of work documents 4F-08-01656 and 4F-06-06581 steps were written with more than one action. Notes were placed before the step, after the associated step and also written in as part of the step. Both work packages were reviewed and released for work after CHPRC took over the contract on October 2008. Due to efforts to standardize the work control process by CHPRC and FFTF transitioning over to the Central Plateau Surveillance & Maintenance group this issue was made an Observation.

DOE O 5480.19 Chapter XVI, Operations Procedures Section C.2.f, states in part, "Procedures should contain only one action per step." Section C2.h, states in part, "Warnings, notes, and cautions should be easily identifiable and should not contain action statements. The probability of missing an action step increases when it is included in a warning, note, or caution."

Examples found in work package 4F-08-01656 include:

- Step 6.1.1.B states in part, "verify <50 volts at the line side of the X-104..." A note describing what to do if you encounter incorrect voltage checks is placed after Step 6.1.1.B not before the step.

- Step 6.1.1.C.a requires the same action as Step 6.1.1.B but is missing a note describing what to do if you encounter incorrect voltage checks.
- Step 6.1.1.D lists three notes after that step followed by four bulleted items that require an action to be performed followed by another note.
- Step 6.1.2 has basically the same issues as Step 6.1.1.

Examples found in work package 4F-06-06581 include:

- Step 6.1.5 states in part, “Craft verify that DC control power 130 VDC to Load Center B-11 is approximately zero, on terminal strips inside the rear door. Note: Drawings show DC source...”
- Step 6.1.9.D states in part, “Craft verify 130 VDC control voltage, i.e., less than 5 volts on terminal strips inside the rear compartments of B-11. Note: Drawings show DC source...”
- Some steps contain more than one action (i.e., Steps 6.13, 6.15, and 6.17).

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-BOS D&D-003-O02

Minor Issues Identified During Interviews. [OA 23115]

Discussion:

During interviews with BOS D&D personnel FR captured comments that demonstrated minor issues or concerns.

One person interviewed was unsure what to do if he saw workers deviating from the work that was described in the work scope (i.e., different instruments, different equipment). His reaction was to only focus on his particular job function within the work package and not be concerned with someone else who might be working outside the scope of the work document. All others interviewed stated they would stop the work or request a work pause then report the issue with their immediate supervisor.

Another person expressed concern with the influx of new D&D workers hired off the street who have no experience with the different procedures (i.e., continuous use, reference use, and minor work tickets) used at Hanford.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-BOS D&D-003-003

BED Emergency Procedure Book contains outdated documents. [OA 23136]

Discussion:

FR reviewed the emergency procedures located in the CPS&M designated operations work area that would be used by the BED in the event of an emergency. The following procedures contained within the emergency notebook were found not to be the current revision:

- DOE-0233, Protective Action; Rev.12 (dated 2/23/08).
- DOE-0233, Event Termination and Reentry and Recovery; Rev.8 (dated 10/27/06).

The following procedure found in the BED Emergency Procedure Book is no longer applicable to the project and has been superseded by PRC-PRO-EM-060.

- HNF-PRO-060, Reporting Occurrences and Processing Operations Information.

The emergency contact phone list was found to not have the correct BOS S&M Manager on the phone list.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

The FR reviewed the Integrated Evaluation Plan for FY 2008 and FY 2009 for any Management Assessments (MAs) performed in the Procedure Content and Use area. Two MAs were recently performed, DD-08-MA-07, titled "Training and Procedures," completed July 2008, and ESHQ-OA-08-MA-01, titled "Management Assessment of Procedure Process," completed September 2008. One Opportunity for Improvement was identified in the MA, ESHQ-OA-08-MA-01.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Harv Harville, CPS&M
Bob Wilkinson, BOS D&D Project Manager
Bo Wier, FFTF

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Kerry Schierman

Surveillance Number: S-09-OOD-GPP-002

Date Completed: May 6, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

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

Title: Procedure Content and Use

Guide: Lines of Inquiry Established in Core Surveillance Guide 9.16, Rev 3c

Surveillance Scope:

The objective of this surveillance was to evaluate the effectiveness of the contractor's program for development and use of procedures. The Facility Representative (FR) reviewed selected operating, surveillance or testing, and maintenance procedures, and observed use of the procedures in the facility. This surveillance provides the basis for evaluating contractor performance and for establishing compliance with specific DOE requirements.

Surveillance Summary:

The FR reviewed the following procedures and work packages and observed all or portions of their performance in the field:

- GRP-FS-04-G-048, *Aquifer Tube/River Springs Sampling Procedure*, Rev 0, Change A, on March 30, 2009 [OA 22512];
- GW-09-00162, *PW-1, Operational Testing of New SVE Process Trailers*, on April 1, 2009 [OA 22561];
- GW-08-02959, *KX, Complete OTP for New Facility*, including an embedded draft facility operating procedure, GRP-FS-04-X-100-001, on April 2, 2009 [OA 22593];
- GW-09-01565, *Modutank Decanting*, on April 3, 2009 [OA 22601];

- GRP-FS-04-H-100-001, *100-HR-3 Pump-and-Treat Operating Procedure*, Rev 6, Change 0, on April 6, 2009 [OA 22624];
- GW-09-01191, *KW, Complete ATP [KW-ATP-002], Load Resin in Train B and Support Construction Completion*, on April 9, 2009 [OA 22709];
- GRP-FS-04-G-004, *Operational Monitoring Groundwater Sampling*, Rev 1, Change C, on April 10, 2009 [OA 22743];
- GW-09-01965, *ZP-1, GAC Removal for Process Components*, on April 13, 2009 [OA 22787];
- GW-09-02555, *KX, Corrections for 3rd Party Inspection IX Failure*, on April 30, 2009 [OA 23205];
- GW-09-02579, *KR-4, Rework IX/Relief Valve Exhaust Lines for 3rd Party Inspection*, on April 30, 2009 [OA 23205];
- GW-09-00652, *Support Well Additions and Facility Modifications*, which included Acceptance Test Procedure, KX-ATP-02, on April 30, 2009 [OA 23205]; and
- GW-09-02662, *KR-4, Remove Pressure Relief Valves on A, B, & C Trains*, on May 6, 2009 [OA 23321].

In total, three findings and four observations were documented:

- S-09-OOD-GPP-002-F01** Two test procedures were not conducted or changed in accordance with accepted processes.
- S-09-OOD-GPP-002-F02** SGRP had not adequately defined a set of controls for restricted use validation of operating procedures other than HNF-PRO-12115, *Work Control*, processes. The method(s) observed for the K Expansion (KX) Pump and Treat Facility compromised several of the processes relied upon to establish and maintain safe and controlled operations.
- S-09-OOD-GPP-002-F03** Two issues identified previously in an Operational Awareness (OA) report were again identified at 100-HR-3 Pump and Treat Facility.
- S-09-OOD-GPP-002-O01** Several labeling discrepancies were identified at the KX Pump and Treat Facility.
- S-09-OOD-GPP-002-O02** Format and/or content discrepancies were identified with the draft KX Pump and Treat Facility operations procedure, GRP-FS-04-X-100-001, Rev 0, Change 0, Draft.

- S-09-OOD-GPP-002-O03** The implementing documents specified in the SGRP Conduct of Operations applicability matrix for DOE O 5480.19, Attachment I, Chapter XVI, Section C.2, did not contain adequate specificity to assure procedure content requirements would be met.
- S-09-OOD-GPP-002-O04** The work instruction for performing modifications to KX Pump and Treat Facility relief valve headers did not provide optimal work isolation instructions.
-

Surveillance Results:

Finding: S-09-OOD-GPP-002-F01

Two test procedures were not conducted or changed in accordance with accepted processes. [OA 22561 and 22709]

Requirement:

HNF-PRO-12115, Section 5.3.2.4, states, "Determine if an Editorial Change is the method best suited to implement the change. If so, go to step 6 for directions on implementing an editorial change...Editorial changes may include the following:

- Format changes that do not alter the technical content of the document or modify the work activity hazards.
- Correction of grammatical, typographical or spelling errors that:
 - Do not affect numbers other than page, table, figure title numbers, or obvious and demonstrable typographical errors. (changes in decimal points, units of measure or nameplate information/data are not editorial changes.)
 - Do not affect units of measure other than obvious and demonstrable typographical errors.
 - Do not affect acceptance criteria other than obvious and demonstrable typographical errors."

HNF-PRO-12115, Step 5.2.5.6.f, states in part, "...Follow the work instructions in a step-by-step manner unless otherwise authorized in the approved instructions."

Work Instruction GW-09-1191, Section 5.1.2, stated, "Any minor changes to test procedure should be redline marked up by Test coordinator and initialed by Facility Design Authority prior to continuing. Major change in scope or concept shall be approved by a revision to the ATP and new signatures by original procedure approvers. And a WCN issued to the work package."

PCL XL error

Subsystem: IMAGE

Error: InsufficientMemory

Operator: ReadImage

Position: 399

Observation: S-09-OOD-GPP-002-003

The implementing documents specified in the SGRP Conduct of Operations applicability matrix for DOE O 5480.19, Attachment I, Chapter XVI, Section C.2, did not contain adequate specificity to assure procedure content requirements would be met. [OA 22624]

Discussion:

In reviewing SGRP procedures against DOE O 5480.19, Attachment I, Chapter XVI, requirements, it came to the FR's attention that the implementing documents designated on the project's Conduct of Operations applicability matrix did not contain adequate specificity to assure Section C.2 requirements would be addressed in procedures.

HNF-PRO-589, Section 5.12, contained direction for preparing and revising technical procedures. Content detail direction primarily came from Steps 4 through 6, which stated, "Ensure document can be performed in the sequence written and is technically accurate. Address applicable requirements and basis documents for implementation. Ensure the document is free of errors, is understandable, and meets the guidelines for content and format." Many of the content and format specifics identified in DOE O 5480.19, Attachment I, Chapter XVI, Section C.2, were not addressed in HNF-PRO-589. For example, content/format requirements of Sections C.2.d, C.2.f, C.2.h, C.2.i, C.2.k, C.2.l, and C.2.o, were not addressed in HNF-PRO-589.

It should be noted that HNF-PRO-589 did not claim to be a DOE O 5480.19 implementing document.

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

Observation: S-09-OOD-GPP-002-004

The work instruction for performing modifications to KX relief valve headers did not provide optimal work isolation instructions. [OA 23205]

Discussion:

Work package GW-09-02555, *KX, Corrections for 3rd Party Inspection IX Failure*, Step 6.1, provided direction to ensure ion exchanger trains A through C were secured prior to performing modifications to the associated relief valve headers. However, there were no isolation instructions provided to secure flow to ion exchanger trains D through F prior to performing modifications to their associated relief valve headers. It should be noted that during the work flow was secured to all the ion exchangers, and the potential hazard (100 psi, cold, groundwater) if a relief valve lifted did not require lockout/tagout, but the work instruction, as written, did not optimize worker protection.

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

Contractor Self-Assessment:

An independent Conduct of Operations assessment was conducted on the project in July 2008. It included a review of procedure content and use. As a result of that review 22 procedures were identified to be in need of significant revision. Over the next six months the project revised the procedures, performed cross-table reviews, and performed field validations, issuing the final revision on January 13, 2009. Since that date informal oversight of procedure content and use has been conducted by project management. In addition, in April 2009, an independent surveillance was conducted to measure the effectiveness of the procedure content and use corrective actions. Although the surveillance identified additional opportunities for improvement, significant progress was noted. Another independent assessment, which will again include procedure content and use, is scheduled for the 4th Quarter of Fiscal Year 2009.

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

Management Debriefed:

R. B. Barmettlor, CHPRC
M. J. Cherry, CHPRC
S. F. Conley, CHPRC
T. J. Ford, CHPRC
S. L. Kooiker, CHPRC
A. J. Rossi, CHPRC
D. M. Turner, CHPRC

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

Division: Operations Oversight Division (OOD)

Surveillant: Dennis Humphreys

Surveillance Number: S-09-OOD-SNF-003

Date Completed: May 11, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Spent Nuclear Fuels (SNF), 100 K Project

Title: Procedure Content and Use

Guide: Lines of Inquiry Established in Core Surveillance Guide OPS 9.16

Surveillance Scope:

The objective of this surveillance is to evaluate the effectiveness of the contractor's program for development and use of procedures.

This surveillance is conducted to verify implementation of requirements of DOE O 5480.19, Chapter XVI; Operations Procedures.

Surveillance Summary:

From an in the field user perspective there are no issues with the content or use of procedures for the activities observed. The issues identified are administrative in nature, two are project level issues and two are CHPRC level issues.

Activity 1 - Review selected procedures to evaluate effectiveness of the contractor's program for development of procedures.

The FR reviewed the following Administrative Procedures:

- PRC-PRO-MS-589, *CH2M Hill Plateau Remediation Company Procedures*, Rev 0, Change 0;

- MS-9-004, *Technical Procedures Use and Compliance*, Rev 12 (August 12, 2004), Change J (11/25/08); and
- PROC-DI-001, *KBCP Desk Instruction – Technical Procedures Writer’s Guide*, Rev 9 (9/12/09).

Operations Procedures:

- ER-SNF-002, Spill, Release, or Contamination Spread at 100K Area, Rev 4 (8/15/06);
- ER-SNF-013, Loss of K Area Fuel Basin Water, Rev 3 (4/1/03), Change J (1/15/09);
- OP-07-133W, Receive PAS-1 Cask, Rev 0 (9/27/06) , Change D (8/25/08);
- MP-07-010W, Remove and Replace IXM-4, Rev 0 (9/15/02), Change AA (2/12/09);
- SP-14-007, Periodic Inspection of 105KW Transfer Bay Crane, Rev 0 (12/04/1998), Change FF (1/03/09);
- OP-43-039W, Obtain Sludge Samples from 105KW Basin Sludge Storage Containers, Rev 0 (01/22/09), Change I (4/30/09); and
- OP-43-016, Load and Ship KW Basin Sludge Samples in PAS-1 Cask, Rev 2 (12/16/03), Change F (02/24/09).

The CHPRC, on April 13, 2009, published a Level 1 document that defines the process for the preparation, review, approval, and use of CH2M HILL CHPRC procedures. This procedure took the place of HNF-PRO-589. Prior to April 13, 2009, the 100K Project (formally K-Basins Closure Project) utilized HNF-PRO-589 in conjunction with several Project (level 3) documents for the purpose of preparation, review, approval, and use of technical procedures. MS-9-004 and PROC-DI-0001 were two of the Project Level 3 documents. PRC-PRO-MS-589, in section 1.3, states the following “CHPRC projects are not authorized to maintain level 3 (project level) processes or policies on procedure preparation, review, approval, and/or use,” and Section 1.4 (implementation) allows the projects 30 days to cancel their level 3 procedures that implement procedure preparation, review, approval, and use processes. PRC-PRO-MS-589, in section 1.4 also states that this procedure is effective upon publication. As of May 5, 2009, the 100K Project level 3 procedures/policies on procedure preparation, review, approval, and/or use have been cancelled. PRC-PRO-MS-589 is the lone administrative procedure directing the development and review process for procedures.

All of the procedures listed were reviewed against the Activity 1 Criterion.

Criterion 2, ask if the methods for developing new procedures, including procedure formats, clearly defined in the writer’s guide. PRC-PRO-MS-589 methods for developing/preparing/revising a procedure are well defined in section 3.3 and Appendix E. PRC-PRO-MS-589 does not have a detailed method for formatting. This issue will be described in more detail captured in the Core Surveillance report sent to the CHPRC.

Criterion 3, ask “Are documents referenced in the procedure correctly identified and are necessary instructions present to guide the user when transferring between procedures. Level 3 Project Operations documents referred to in the procedures reviewed met the criteria.” In one case the Project level 3 procedures referred to two HNF-PROs that have

been replaced by a PRC-PRO. None of the procedures referred to any outdated or superseded level 3 Project procedures. See S-09-OOD-SNF-003-F01 for details.

Criterion 4, ask "Have procedure changes outstanding for an extended period (e.g., longer than 6 months), or when a procedure has been affected by several changes (e.g., more than five), been incorporated as revisions?" All but one procedure reviewed had issues with either the number of changes or the period of time since the change was issued. See S-09-OOD-SNF-F02 for details.

PRC-PRO-MS-589 does not have a requirement describing the actions to take for changes that have been issued greater than a predetermined time period. This issue will be described in more detail captured in the Core Surveillance report sent to the CHPRC.

Activity 2 - Observe the use of the procedures and evaluate the procedure user's knowledge of the facility process for use of procedures.

The following procedures were observed in use in the field:

- OP-43-039W, Obtain Sludge Samples from 105KW Basin Sludge Storage Containers, Rev 0 (01/22/09), Change I (4/30/09).
- OP-43-016, Load and Ship KW Basin Sludge Samples in PAS-1 Cask, Rev 2 (12/16/03), Change F (02/24/09).

The activities observed using OP-43-039W, were preparing samples for shipment after the 12 hours has elapsed since sample collection and using procedure OP-43-016 for loading the samples into the PAS-1 Cask. For OP-43-039W the FR observed the placement of the two sample bottles into the Shielded Shipping Container (SSC), transporting the SSCs to the transfer bay, and placing the SSCs in the Job Box pending loading into the PAS-1 Cask for shipment. For OP-43-016 the FR observed the disassembly of the PAS-1 Cask from the removal of the secondary containment vessel containment lid through the removal of the Primary Containment Vessel containing the two empty SSCs.

The procedures and the procedure users were evaluated against the core surveillance criteria for Activity 2. No issues with Use of Procedure.

Activity 3 - Evaluate the adequacy of the contractor's procedure administration program.

For Activity 3 the FR was tasked to evaluate the contractor's procedure administration program. PRC-PRO-MS-589 was effective on April 13, 2009. PRC-PRO-MS-589, in section 1.3, states the following "CHPRC projects are not authorized to maintain level 3 (project level) processes or policies on procedure preparation, review, approval, and/or use," and in Section 1.4 (implementation) allows the projects 30 days to cancel their level 3 procedures that implement procedure preparation, review, approval, and use processes. PRC-PRO-MS-589, in section 1.4 also states that this procedure is effective upon

publication. As of May 5, 2009, the 100K Project level 3 procedures/policies on procedure preparation, review, approval, and/or use have been cancelled. PRC-PRO-MS-589 is the lone administrative procedure directing the development and review process for procedures.

PRC-PRO-MS-589 was evaluated to the applicable Activity 3 Lines of Inquiry (Criteria). The PRC-PRO does provide Appendix G for guidance relative to Subject Matter Expert Reviews. Appendix G does not require signatures by the reviewers. Form A-6004-593, CHPRC Procedure Request Form, provides a place for identifying the reviewers and approvers along with a place for each reviewer and approver to sign for the review and/or approval of the procedure. In the case of subject matter experts; they are not required to sign for their respective reviews as stated in the opening paragraph for Appendix G even though there is a space on the Procedure Request Form for their signature.

PRC-PRO-MS-589 has established a policy, in section 3.12 regarding procedure use in terms of Continuous Use, Reference Use, and Administrative Use. Appendix D provides criteria as to when to apply each use designator.

The following is a listing of the two findings generated as a result of the surveillance:

S-09-OOD-SNF-003-F01: Referenced documents in ER-SNF-002 were incorrectly identified.

S-09-OOD-SNF-003-F02: Procedures reviewed had either exceeded the allowed number of changes prior to revision or the changes had exceeded 6 months since initially issued without a revision being issued.

Surveillance Results:

Finding: S-09-OOD-SNF-003-F01

Referenced documents in ER-SNF-002 were incorrectly identified.

Requirement:

DOE O 5480.19, Chapter XVI, Section C.2.j. states, "Procedures should be technically and administratively accurate (i.e., the instructions and information should be correct; referenced documents should be correctly identified; and necessary instructions should represent to guide the user when transferring between procedures)."

Discussion:

ER-SNF-002, Spill, Release, or Contamination Spread at 100 K Area, referred to HNF-PRO-060, Reporting Occurrences and Processing Operations Information, and HNF-PRO-15333, Environmental Protection Process. Both HNF-PRO-060 and HNF-PRO-

15333 have been superseded by two new CHPRC procedures; PRC-PRO-EM-060 and PRC-PRO-EP-15333 respectively. ER-SNF-002 was not revised to reflect the correct reference. HNF-PRO-EM-060 and EP-15333 were adopted by the CHPRC initially but were subsequently superseded by the PRC-PRO, making the two HNF-PROs exclusive to FHI. PRC-PRO-EM-060 was published and effective on April 29, 2009, without any prescribed implementation period. PRC-PRO-EP-15333 was published and effective May 1, 2009, also without any prescribed implementation period. None of the procedures referred to any outdated or superseded level 3 Project procedures. The CHPRC is in the process of replacing a number of blue sheeted HNF (FHI) procedures and replacing them with PRC (CHPRC) procedures or in some cases combining or deleting entire HNF procedures. It is important to ensure that as soon as possible after implementation 100 K Project Level Procedures should be reviewed and the applicable HNF documents replaced, via a change and/or revision, with the correct PRC document. This ensures the procedure users go to the correct referenced document.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-ODD-SNF-003-F02

Procedures reviewed had either exceeded the allowed number of changes prior to revision or the changes had exceeded 6 months since initially issued without a revision being issued.

Requirement:

DOE O 5480.19, Chapter XVI, Section C3.c. states in part, "been outstanding for an extended period (e.g., greater than 6 months) or when a procedure has been affected by several changes (e.g., more than five). All currently effective procedure changes should normally be incorporated when the procedure is revised."

Discussion:

The following procedures had more than 10 minor changes without a follow on revision:

- MP-07-010W
- ER-SNF-002
- SP-14-007

The following procedures had minor changes greater than 6 months old without a follow on revision.

- OP-43-016
- ER-SNF-002
- ER-SNF-133W
- OP-07-010W
- SP-14-007

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

Contractor Self-Assessment:

The 100K Project conduct a Procedure Content and Use Management Self-Assessment (MA) in the first quarter of Fiscal Year (FY) 2009. No findings. The MA involved 4 activities; 3 at K West Basin and 1 at CVDF. The MA was in part conducted in response to several procedural compliance issues identified during the 2008 MCO ORR. The assessment utilized a checklist for each activity observed. No issues were identified with the conduct of this MA. The FR reviewed assessments planned for FY 2009 and noted several assessments planned that would be considered procedure content and use type assessments.

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

Management Debriefed:

Terry Hissong, Operations Manager
Chris Lucas, Facilities Operations Manager
Jim Meeker, Operations Specialist

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: Sharee Dickinson, Ed MacAlister, Sandy Trine

Surveillance Number: S-09-OOD-PFP-004

Date Completed: May 18, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Procedure Content and Use

Guide: Lines of Inquiry Established in Core Surveillance Guide 9.16, Rev 3c

Surveillance Scope:

The objective of this surveillance was to evaluate the effectiveness of the contractor's program for development and use of procedures. The Facility Representative (FR) reviewed selected operating, surveillance or testing, and maintenance procedures, and observed use of the procedures in the facility. This surveillance provides the basis for evaluating contractor performance and for establishing compliance with specific DOE requirements.

Surveillance Summary:

The FRs reviewed the following procedures and work packages and observed all or portions of their performance in the field:

- ZSE-99A-001, Criticality Alarm System (CAS) Check Out and Audible/Visual Alarm Test, Rev G, Chg 4;
- ZSE-25A-036, Aerosol Testing of Filter Box FB-25 Room 308, 234-5Z, Rev F, Chg 3;
- PRC-PRO-WKM-40004, *Hazard Review Board*, Rev 0, Chg 1;
- ZO-060-117, Power and Ventilation Equipment Surveillance, Rev J, Chg 7;
- ZSE-25-101, Ventilation Zone Pressure Surveillance, Rev B, Chg 9;
- 2Z-09-0144, Hanford Unirradiated Fuel Package (HUF) Preparation and Loading Mockup
- 2Z-09-0145, HUF Transfer to Conveyance Mockup

- 2Z-07-01166, Replace HEPA Filters in FR-310 (E-4)
- ZSP-002, Moving Fissile Material, Revision G, Chg 4;
- ZO-170-047, Low Level Waste Handling and Packaging, Rev D, Chg 4
- 1-ZM-126, Racking In or Racking Out of Breaker Types DK-25 System 12A, Rev C, Chg 5;
- ZO-060-626, Standby Power System Transfer Test, Rev B, Chg 4;

This review covered the period since February 2009, in which CHPRC has come on board with time to begin injecting change at PFP. Though some work packages and procedures may have been written prior to work execution, the work was being performed by CHPRC under their work release authority. As the FRs identified issues to CHPRC, CHPRC took an active roll in correcting the immediate issue and are continuing to develop a focus on broader issues to improve Procedure Content and Use via Conduct of Operations and Integrated Safety Management. Since the beginning of the year, the FRs have seen an improvement with development and execution of procedures and work packages.

In general, the FRs consider the Procedure Content and Use practices to be satisfactory and the activities observed appeared to generally meet requirements. In total, four findings and two observations were documented:

- **S-09-OOD-PFP-004-F01** - Clarity Required to Complete Operator Data Sheets.
- **S-09-OOD-PFP-004-F02** - HUFPP Mockup Procedure Steps Worked out of Sequence.
- **S-09-OOD-PFP-004-F03** – Missing Work Step in Filter Room 310 Filter Replacement Work Package.
- **S-09-OOD-PFP-004-F04** - Real-time notification to the PFP RL FRs did not occur for a few issues.
- **S-09-OOD-PFP-004-O01** - Potential Mis-Use or over-use of the Note for performance of work concurrently and/or independently.
- **S-09-OOD-PFP-004-O02** - Procedures cancelled since CHPRC transition may be useful guidance for conduct of operations enhancement effort on going at PFP.

Surveillance Results:

Finding: S-09-OOD-PFP-004-F01

Clarity Required to Complete Operator Data Sheets. [OA 23361]

Requirement:

DOE O 5480.19, Attachment I Chapter XVI, C.2.e states, "Procedures should be easily understood and actions be clearly stated."

Discussion:

On April 28, 2009, the FR went on Stationary Operating Engineer (SOE) surveillance rounds with the operator for Room 321. Room 321 is the Control Room for various equipment located in; 234-5Z, 236-Z (PRF), and 291-Z. The operator uses procedures ZO-060-117, Power and Ventilation Equipment Surveillance and ZSE-25-101, Ventilation Zone Pressure Surveillance and applicable data sheets. FR noted good knowledge of systems, understanding and response to alarms, and responded well to various questions presented by FR. Good conduct of operations was observed while identifying equipment, recording data, and understanding equipment and system configuration.

Procedure ZO-060-117 is a Surveillance, Information Use procedure and ZSE-25-101 is a Technical Safety Requirement Compliance Program, Reference Use procedure. Review of the procedures and field observations showed that information in the field coincides with required information on the data sheets; equipment designators, operating parameters, acceptance criteria easily discernable, etc. The SOE demonstrated his understanding of the actions to be taken on the data sheets for corrections, clear communication (explanations in comment section), and ability to locate current procedures/data sheets. There was a follow-up discussion with the Shift Operations Manager regarding expectations for completing data sheets and clarity of instructions within the procedures.

In reviewing the text within procedures ZO-060-117 and ZSE-25-101 (Step 4.2 and text on Data Sheet 1), the text instructions do not match up with the format of the data sheets in which information can be recorded. Specifically in ZO-060-117, Step 4.1.2, bullet 1 states, "When recording Zone 3, 3A, 3B or Zone 3 PRF pressure, then RECORD the least negative pressure of the three readings (PC, PDI, or recorder)." The least negative reading was not being taken and for the frequency of the readings taken, the data sheets did not accommodate documentation of which instrument the reading came from. After speaking with the Operations Manager, the FR learned that knowing which instrument was used for taking the reading was not a requirement. Specifically in ZSE-25-101, within Step 4.2 requires "IF primary instrument is not operable, THEN TAKE reading from a secondary instrument (shown in parenthesis on Data Sheet 1)". The SOE discussion with FR did not differentiate the requirement of primary vs secondary instrument. In addition, the text on Data Sheet 1 states, "Minimum building differential pressures; circle instrument used for reading." One interpretation of this text can be to take the lowest negative reading. As stated above, both documents are not continuous use and are not required to be with SOE when taking rounds. The similarities of the requirements, yet different, allow for inconsistent implementation. In fact, the FR observed field implementation to be inconsistent with the procedure language. However, the required information is being recorded and is readily traceable back to the specific calibrated instrument. Clarity between expectations and information recorded on data sheets needs improvement.

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

Finding: S-09-OOD-PFP-004-F02

HUFP Mockup Procedure Steps Worked out of Sequence. [OA 22146]

Requirement:

DOE O 5480.19, Attachment I, Chapter XVI, C.7 states in part, "Operators should have procedures with them and follow them in a step-by-step manner when the procedures contain sign-offs for the various activities."

Discussion:

During work package 2Z-09-0144, HUFP Preparation and Loading Mockup, the FR observed general work activities with a focus on procedure content and use. Overall work performance was acceptable; however, the FR did observe some work that was performed out of sequence. Examples include bagging the HUFP Closure Lid to protect the seals prior to placing on the closure lid (step 6.8.8 second bullet), bagging the HUFP CCC Adapter Lid prior to moving to the next steps (step 6.9.5), and ensuring a device is placed in HUFP openings to prevent the loss of the socket head cap screws inside the HUFP (step 6.9.2). Since then, PFP management has stressed the importance of step-by-step with the First Line Managers at PFP as well as crafts and significant improvement has been noted by the FR.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-PFP-004-F03

Missing Work Step in Filter Room 310 Filter Replacement Work Package. [OA 21818]

Requirement:

DOE O-5480.19, Conduct of Operations, Chapter 16, Operations Procedures, Section 2 Procedure Content, paragraph j. states in part, "Procedures should be technically and administratively accurate..."

DOE O-5480.19, Conduct of Operations, Chapter 16, Operations Procedures, Section 2 Procedure Content, paragraph n. states in part, "Sequence of procedural steps should conform to the normal or expected operational sequence..."

Discussion:

FR attended the pre-job for Filter Room 310, in which approximately 73 percent of the filters have been replaced and the job is expected to complete this week. Though the graded approach was exercised for the crew based on the scope of work and the same task continuing, the Person In Charge (PIC) provided a one-on-one briefing for the Integrated Safety Management System (ISMS) review team personnel and FR. While observing the work and reviewing the work package for Task #5 of 2Z-07-01166, WCN#3, the FR identified performance of work out of sequence; the step for application of adhesive to the filter gasket material was not evident in the package. Discussion with the PIC and some crew members took place. The FR spoke with the

PIC and he identified the adhesive action in Task #4, but was unable to locate it in Task #5. The PIC proceeded to get the work package changed. Management addressed the issue with the PIC and followed up with the FR.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-PFP-004-F04

Real-time notification to the PFP RL FRs did not occur for a few issues. [OA 22060 & 22277]

Requirement:

CRD M 231.1-2 (Supplemented Rev 5), *Occurrence Reporting and Processing of Operations Information*, Section C – Supplemental Requirements, item A. states in part, “Facility Management shall notify the Facility Representative (FR) for all events such that real time notification of DOE line management occurs for personnel injuries, personnel radioactive contamination or internal deposition, chemical exposures, work stoppages, and any other situation that might receive public, regulatory, or DOE Headquarters attention. In addition, the FR shall be notified on a 24-hour basis of events that reach a threshold to notify the Facility Manager, to include non-reportable and adverse conditions. If Facility Management is unable to contact the FR, then the On-Call FR shall be notified. Specific criteria for notification shall be, but are not limited to [underline for emphasis], the following [specific examples are listed]:”

PRC-PRO-EM-060, *Reporting Occurrences and Processing Operations Information*, section 3.3 step 1. states in part, “Notify the DOE-RL Facility Representative (FR) on a 24-hour real-time basis (immediately) for all events involving personnel injuries, personnel radioactive contamination or internal deposition, work stoppages, or chemical exposures; all events that have the potential to receive public, regulatory, or DOE-HQ attention; all events that reach a threshold to notify the Facility Manager, including non-reportable and adverse conditions;”

Discussion:

According to information available at the critique conducted on February 18, 2009, in response to unexpectedly finding liquid during removal of a valve underneath glove box HA-21I, the PFP closure manager was involved with at least one ‘pause’ meeting for glove box HA-21I activities during the week of February 9, 2009. Contrary to the requirement in PRC-PRO-EM-060, a PFP FR was not notified about HA-21I issues until the liquid was found during valve removal on February 17, 2009. See OA-22060 for more details about actions taken in response to the discovery of oily liquid.

The PFP closure manager was informed on March 18, 2009, that a significant number of loaded Department of Transportation (DOT) 9975 containers might not meet the DOT 9975 Safety Analysis Report for Packaging (SARP) or the Savannah River Documented Safety Analysis requirements. A torque wrench used during the loading process was determined to be out of calibration by a large enough margin to require additional actions to verify that the containers

were compliant with the SARP. A PFP FR learned of this issue at the 6:30 a.m. PFP management meeting on March 19, 2009. See OA-22277 for more information.

Since contractor transition on October 1, 2008, PFP management has been proactive about notifications and has promoted open information exchange. In general, the FRs are satisfied with the level and adequacy of reporting issues/events on a real-time basis at PFP. Thus, the missed notifications were judged to be isolated issues. Since the FRs have repeatedly requested that notification decisions error on the side of too much rather than too little reporting, any missed notification was considered significant enough to be included in the FY 2009, Procedure Content and Use surveillance report.

Based on acknowledgement of the notifications errors, the isolated nature of the notification errors and discussions with PFP management about notifications at nearly every interface meeting, RL Lead Assessor Closure is not required for this finding.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-PFP-004-O01

Potential Mis-Use or over-use of the Note for performance of work concurrently and/or independently. [OA 21531]

Discussion:

FR attended review of HUFPP Mockup training work packages, 2Z-09-0144, HUFPP Preparation and Loading Mockup and 2Z-090145, Transfer HUFPP to Conveyance Mockup. Good participation and input by attendees and comments/discussions were well received.

Mockup work package 2Z-09-0144, HUFPP Preparation and Loading Mockup, has a total of three tasks which just prior to each task states it may be worked concurrently with one of the other two Tasks; Task 1 refers to Task 2, Task 2 refers back to 1, and Task 3 refers to Task 2. This potentially gives the appearance that the three tasks can all be worked concurrently. The FR believes this misses the point of a Continuous Use procedure.

The second work package 2Z-090145, Transfer HUFPP to Conveyance Mockup, is prolific with similar Notes but at the Step level. Some areas where the Note is applied could better be addressed by bullets, some areas do not support the Note and actually require step by step execution, and some areas are a combination of the two.

Specific examples of these types of Notes include:

NOTE: 6.4.3 thru 6.4.6 can be performed concurrently, independently and/or in any order as determined by the FWS;

NOTE: 6.5.2 thru 6.5.3 can be performed concurrently, independently and/or in any order as determined by the FWS;

NOTE: Steps in 6.6 can be performed concurrently, independently and/or in any order as determined by the FWS;

NOTE: Steps in 6.8 can be performed concurrently, independently and/or in any order as determined by the FWS; and

NOTE: 6.10.4 thru 6.11.2 can be performed concurrently, independently and/or in any order as determined by the FWS.

This particular work instruction over uses the option and defeats the purpose of Continuous Use.

It is understood the intent is to allow some flexibility, however this level of flexibility takes away the intent of Continuous Use. The FR discussed the issues with the assigned Planner and the Planning Manager. The packages were reviewed and changes made. Follow-on work packages developed from these mockup work packages were also reviewed.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-PFP-004-O02

Procedures cancelled since CHPRC transition may be useful guidance for conduct of operations enhancement effort ongoing at PFP. [OA 20537]

Discussion:

The procedures for PFP watch program (FSP-PFP-5-8, section 2.27) and the PFP work document use policy (FSP-PFP-5-8, section 13.7), were cancelled by the CHPRC during the first quarter of FY 2009. Both of these procedures had significant roles in previous conduct of operations enhancement efforts at PFP. Operations Assurance report 20537 described the significant role the watch procedure played in the closure of the conduct of operations findings from a 2007 EM-62 ISMS assessment completed in February 2007. The work document use policy played a similar role in closure of the EM-62 assessment and other conduct of operations issues at PFP prior to contractor transition in October 2008. Review and consideration of these procedures as part of the ongoing CHPRC PFP conduct of operations enhancement effort is suggested as an opportunity for improvement.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

Three independent assessments have been performed on the project within the last 12 months that covered portions of Procedure Content and Use. The most recent was conducted during the second quarter of FY 2009. The assessment evaluated the Project's implementation of the Integrated Safety, Health and Management System programs, procedures, and policies as they relate to conduct of work. As a result of that review seven Findings and ten Opportunities for Improvement were noted; not all of which were specific to Procedure Content and Use. An independent Conduct of Work Practices assessment was conducted during the fourth quarter of 2008, and included a partial review of procedure content and use. One Opportunity for

Improvement was noted. The third independent Conduct of Operations assessment was conducted on the project in May 2008. It also included a review of procedure content and use. As a result of that review two Findings and seven Observations were noted; not all of which were Procedure Content and Use issues.

The FR identified at least four self-assessments that would include a review of Procedure Content and Use in FY 2008 and FY 2009 to date.

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

Management Debriefed:

James R. Brack, FFS
Mark A. Crocker, CHPRC
Lee Ebbeson, CHPRC
Terry Hunter, CHPRC
Bob Leonard, CHPRC
Rick Wilbanks, CHPRC



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

09-OOD-0075

JUL 28 2009

Mr. C. G. Spencer, President
Washington Closure Hanford, LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF SURVEILLANCE REPORT
S-09-OOD-RCP-004, HEAT STRESS

In June 2009, RL assessed WCH's occupational safety and health program that addresses heat stress hazards and evaluated the effectiveness of actions taken by WCH to protect workers from the effects of heat stress. The results of this assessment indicate that WCH did not implement an integrated hazard evaluation and control process to protect employees from the combined hazards of heat stress and radiation exposure. One Concern, five Findings, and one Observation are documented in the surveillance report.

WCH is directed to process the attached surveillance report through the WCH established corrective action management system and provide a corrective action plan to RL within 30 days in accordance with SCR D 470.2B (Supp. Rev. 2).

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 Ray J. Corey, Assistant Manager for Safety and Environment, at (509) 376-0108.

Sincerely,

Jewel J. Short
Contracting Officer

OOD:JJW

Attachment

cc w/attach:

D. M. Boone, WCH
R. A. Dodd, WCH
S. L. Feaster, WCH
T. A. Harris, WCH

D. H. Houston, WCH
D. L. Plung, WCH
R. J. Skwarek, WCH
B. D. Smith, WCH

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

Division: Operations Oversight Division (OOD)

Surveillant(s): Steve Bertness, Joy Flack, Brenda Pangborn, and Joe Waring (Lead Assessor)

Surveillance Number: S-09-OOD-RCP-004

Date Completed: June 25, 2009

Contractor: Washington Closure Hanford LLC (WCH)

Facilities: 100N and 300 Areas

Title: Heat Stress

Guide: OSS 19.8a, Heat Stress OSH Technical Surveillance and Assessment Guide

Surveillance Scope:

The objective of this surveillance was to assessing the contractor's occupational safety and health program that addresses heat stress hazards and to evaluate the effectiveness of actions taken by the contractor to protect workers from the effects of heat stress.

Surveillance Summary:

As of Tuesday, June 16, 2009, three WCH employees have experienced symptoms of heat stress. This was the third employee incident of heat stress in the past three weeks. In the interim three weeks, between the first two incidents and the third, WCH limited response was not adequate in preventing a third incident.

The June 16, 2009 incident involved an employee in the 300 Area, Bldg 327. The employee was working inside an Airborne Radioactivity Area (ARA)/Contamination Area (CA) and wearing one set of Kimberly-Clark disposable coveralls. After working in the area for an hour, the employee experienced an elevated pulse rate and went to the cool room. According to interview statements, the employee left the cool room, doffed Personnel Protective Equipment (PPE), drank a small amount of water and Gatorade and immediately threw up. Hanford emergency was called and responded, however the employee refused transport to a designated medical provider. At that point the safety

supervisor intervened and provided transport to AnovaWorks Medical Clinic. The employee was evaluated and released without treatment.

On the morning of May 27, 2009, workers inside 107N CA wore two pair of PPE, the outer pair was Tyvek or other disposable permeable, water resistant set and the inner pair was cotton. All workers exiting the zone were sweating heavily (the employees worked through lunch), and one worker needed to sit on a chair in the radiological buffer frisking area. Water was requested prior to being frisked, but the radiological control technician supervisor (RCS) present would not allow it. One of the RCTs asked if a call should be made to 911, but the worker said no. The worker was frisked, exited the Radiological Buffer Area (RBA), and was promptly given water.

In the afternoon of May 27, 2009, Bldg 117N, three workers entered the building wearing Saranex (impermeable PPE). One employee exited the building and interviews indicated the worker had a headache, felt nauseated and was shaking. On the way to AdvanceMed Hanford (AMH) for evaluation, the employee indicated he felt better and was taken to his car instead.

An onsite evaluation by DOE surveillants involved a review of written programs, employee and management interviews, and observation of entries into radiological zones. During the observations, employees donned/doffed PPE and were sometimes monitored with a Nonin Onyx pulse meter.

The surveillance resulted in the following one Concern, five Findings, and one Observation:

S-09-OOD-RCP-004-C01: WCH did not implement an effective integrated hazard evaluation and control process.

S-09-OOD-RCP-004-F01: The contractor management directed changes to PPE selection without an adequate and verified hazard assessment.

S-09-OOD-RCP-004-F02: The specific PPE requirements were not adequately communicated to the workers.

S-09-OOD-RCP-004-F03: Physiological monitoring was not conducted for workers wearing impermeable PPE.

S-09-OOD-RCP-004-F04: Physiological monitoring for heat strain was not conducted in accordance with ACGIH-TLV or WCH policy and procedure.

S-09-OOD-RCP-004-F05: Appropriate job specific controls for heat stress are not always considered and/or implemented.

Observation: S-09-OOD-RCP-004-O01: Wet bulb globe temperature (WBGT) measurements are not taken in the areas employees are performing work.

Surveillance Results:

Concern: S-09-OOD-RCP-005-C01

WCH did not implement an effective integrated hazard evaluation and control process.

Discussion:

As documented by the Findings below, RL is concerned that WCH has not implemented an effective integrated hazard evaluation and control process. RL's investigation into the three recent heat related incidents indicates that changes to PPE were made by the WCH management without consideration to safety and health hazards created by the changes. In addition, these changes were made without input from the WCH Safety & Health organization. These changes were not adequately evaluated or communicated throughout the workforce and the projects and were a direct contributor to the three heat related incidents.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-004-F01

The contractor management directed changes to PPE selection without an adequate and verified hazard assessment.

Requirements:

10 CFR 851.23 Safety and Health standards, specifies "(a) 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" excluding 29 CFR 1910.1096 "Ionizing Radiation"...

29 CFR 1910.132(d)(1) The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall:

29 CFR 1910.132(d)(1)(i) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

NOTE: The intent of this standard is addressed in 29 CFR1910 Subpart I, Appendix B.

29 CFR 1910.132 (d)(2) The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

RC-100-10.1, section 4.0, paragraph 5, “Determination of Personal Protective Equipment (PPE) should include discussion with the Project Safety Representative to ensure compatibility with PPE requirements for non-radiological hazards.”

Discussion:

As a result of two skin contamination events at Bldg 327, management required an immediate change in the PPE policy. The immediate change did not allow time for a hazard assessment to be conducted and verified before implementation.

The policy was changed in an email dated May 21, 2009. The email stated: “Here are some actions I want to take immediately... 3) I want a second set of Protective clothing on for the 327 interference removal and any 107N work. I believe [the WCH radiological control manager and D4 Project RadCon manager] are going to strongly recommend cloth PCs on the inside and Tyvek on the outside. I want the Tyvek so we protect from the sweat. Once we land on this, I want this mandated in the RWP with no option that allows someone away from the Tyvek (again this is for the risky work inside [contamination area (CA)], not needed for the wire sawing). This should be a permanent change in our RWPs for this type of risky work...”

The change in policy was immediately implemented. Workers in a CA inside Bldg 107N wore a double set of coveralls; the outer pair was Tyvek or other disposable permeable, water resistant set and the inner pair was cotton. On May 27, 2009, one worker needed to sit on a chair in the radiological buffer frisking area before they could exit the area.

For work in Bldg 117N, three workers entered the building wearing Serinex and one worker subsequently experienced heat strain symptoms.

The Job Hazard Analysis and Radiological Work Permits for the activities in 117N and 107N required a full set of PPE for entry into a contamination area. The permit did not specifically identify the type of required PPE. Discussion with the project radiological control personnel indicated for their purposes (radiological control) a full set of PPE (Serinex or other material) in a CA provides adequate protection.

In summary, a written record certifying the hazard assessment and specifying the type of PPE would help ensure an adequate assessment, which accounts for the hazard of heat stress, is completed before implementation.

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

Finding: S-09-00D-RCP-004-F02

The specific PPE requirements were not adequately communicated to the workers.

Requirement:

1910.132(d)(1)(ii) Communicate selection decisions to each affected employee.

Discussion:

Interviews with the project radiation protection supervisor indicated the workers entering Bldg 117N wearing Serinex did not receive the verbal change in policy that allowed the use of water resistant, breathable disposable outer pair of coveralls in lieu of Serinex.

The lack of formal documentation and inadequate communication of PPE requirements resulted in workers wearing Serinex and an exposure to heat strain.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-004-F03

Physiological monitoring was not conducted for workers wearing impermeable PPE.

Requirements:

10 CFR 851.23 Safety and Health standards, specifies "(a) 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" excluding 29 CFR 1910.1096 "Ionizing Radiation"... (9) American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices," (2005)...."

2005 ACGIH TLVs, Page 177, Section 1 If workers are required to wear clothing not represented by ensembles in Table 1, then the no branch should be taken. This decision is especially applicable for clothing ensembles that are 1) barriers to water vapor or air movement, 2) encapsulating suits, or 3) multiple layers.

2005 ACGIH TLVs, Page 177, Table 1 Heat Stress Expected → Does clothing allow air of water vapor movement? → Perform heat strain physiological monitoring. (See Section 4)

Discussion:

In the afternoon of May 27, 2009, three workers entered a CA in Bldg 117N wearing Serinex (impermeable PPE) and physiological monitoring was not conducted. While performing work activities, an employee experienced symptoms of nausea, headache and shaking. On the way to AMH for evaluation, the employee indicated he felt better and was taken to his car instead.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-004-F04

Physiological monitoring for heat strain was not conducted in accordance with ACGIH-TLV or WCH policy and procedure.

Requirement:

2005 ACGIH TLVs, Page 181, Table 4 Excessive heat strain may be marked by one or more of the following measures, and an individual's exposure to heat stress should be discontinued when any of the following occur:

- Sustained (several minutes) heart rate is in excess of 180 bpm (beats per minute) minus the individual age in years (180 – age), for individuals with assessed normal cardiac performance.
- Recovery heart rate at one minute after peak work effort is greater than 110 bpm.

Discussion:

The surveillance team observed CA entry and exit from 117N on June 2, 2009. The Industrial Hygiene Technician was placed outside the CA and was not in a position to monitor for sustained or recovery heart rate one minute after peak work effort.

The Industrial Hygiene Technician was instructed by management not to don PPE and enter the CA. Workers heart rate was checked prior to entry with the Nonin Onyx Pulse Meter. The employees were inside the CA for approximately 30 minutes and monitoring for sustained heart rate was not conducted. Upon exiting the bldg, employees were still in the CA as they stood in line for 10 plus minutes before frisking by Radiation Control Technician. PPE was then doffed and employees exited the buffer area and heart rate was checked. The time between exiting the bldg and doffing PPE was significantly more than one minute after peak work effort.

The WCH/Industrial Hygiene Heart Rate Monitoring Form dated May 29, 2009, did not document the Permissible Pulse Rate for employees involved in the demolition of the Golf Ball. One employee experienced a pulse rate of 132. It is not possible to determine if this employee was at risk of heat strain without establishing the permissible pulse rate.

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

Finding: S-09-OOD-RCP-004-F05

Appropriate job specific controls for heat stress are not always considered and/or implemented.

Requirement:

2005 ACGIH TLVs, Page 182, Section 5 In addition to general controls, appropriate job-specific controls are often required to provide adequate protection. During the consideration of job-specific controls, Table 2, along with Table 1 and 3, provide a framework to appreciate the interactions among acclimatization state, metabolic rate, work/rest cycles and clothing. Among administrative controls, Table 4 provides acceptable physiological and behavioral limits. The mix of job-specific controls can only be selected and implemented after a review of the demands and constraints of any particular situation. Once implemented, their effectiveness must be confirmed and the controls maintained.

2005 ACGIH TLVs, Page 183, Table 5 Job-Specific Controls

- Consider engineering controls that reduce the metabolic rate, provide general air movement, reduce process heat and water-vapor release, and shield radiant heat sources, among others.
- Consider administrative controls that set acceptable exposure times, allow sufficient recovery, and limit physiological strain.
- Consider personal protection that is demonstrated effective for the specific work practices and conditions at the location.

Discussion:

Interviews with management indicate the risk of heat stress is primarily addressed with general controls, which include physiological monitoring and worker self-reporting of signs and symptoms of heat strain (See General Controls 2005 ACGIH TLVs, Page 183, Table 5). To prevent heat strain incidents, implementation of feasible job-specific controls should be considered for each work activity, especially during the summer.

Specific examples include: On June 2, 2009, workers were observed standing in the sun for over an hour to support the work inside Bldg 117N. A cooler with cold water and Gatorade were available in the back of a truck. However, a covered area to shield the sun's radiant heat had not been established.

The lack of job-specific selection of PPE and the mandate for impermeable protection may have been a contributing factor in the two May 27, 2009, incidents of heat strain.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-004-O01

Wet bulb globe temperature (WBGT) measurements are not taken in the areas employees are performing work.

Discussion:

The contractor has clearly recognized that the application of the WBGT may have value in guiding decisions but cannot be the only tool relied upon for preventing heat stress among the work force. Currently, most WBGT readings documented for worksite conditions are obtained from an outside central monitoring stations located at 100N, 200 Area Metrological Station or at the 300 Area station.

WCH procedure SH-1-4.5, Revision 1, Temperature Extremes, Section 6.3 allows the use of centralized WBGT readings with some limitations.

At 100 N, regular phone calls are made to the centralized stations to obtain temperature readings. Often only the dry bulb temperature is documented. Interviews indicated that a dry bulb of 70 degrees F was used in the decision making process to address heat stress.

inside. Whenever possible, WBGT readings should be taken in the areas employees are working, especially if working indoors.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

WCH's Integrated Assessment Program database was reviewed for Fiscal Years (FY) 2008 and 2009. One surveillance report was found, *Preparation for Control of Heat Stress*, dated May 13, 2008, which was performed on the 100N D4 project. The self-assessment was satisfactory to ensure readiness for monitoring of heat stress on one WCH project. There were no documented self-assessments on evaluating the implementation of the heat stress program nor were there other heat stress related self-assessments documented or scheduled within WCH for FY 2008 or FY 2009.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

D.M. Boone, WCH
K.D. Jenkins, WCH
R.J. Skwarek, WCH
B.D. Smith, WCH
G.B. Snow, WCH



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

09-SED-0120

JUL 30 2009

Mr. D. G. Ruscitto, President
and Chief Executive Officer
Fluor Hanford, Inc.
Richland, Washington 99352

Dear Mr. Ruscitto:

CONTRACT NO. DE-AC06-96RL13200 – TRANSMITTAL OF HOISTING AND RIGGING
SURVEILLANCE REPORTS S-09-SED-FHI-013, S-09-SED-FHI-014, S-09-SED-FHI-015

The purpose of this letter is to transmit three Surveillance Reports (S-09-SED-FHI-013, S-09-SED-FHI-014, and S-09-SED-FHI-015) that address hazards associated with the implementation of your Hoisting and Rigging program for mobile cranes. One concern, 12 findings, and one observation are documented in the surveillance reports.

FHI is directed to process the attached surveillance reports through the FHI 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) to RL by August 21, 2009.

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 Pete J. Garcia Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Sally A. Suracki
Contracting Officer

SED:JF

Attachments

1. Surveillance S-09-SED-FHI-013
2. Surveillance S-09-SED-FHI-014
3. Surveillance S-09-SED-FHI-015

cc w/attachs:

H. P. Bolig, FHI
M. S. Strickland, FHI

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

Division: Safety & Engineering Division (SED)
Surveillant: F. D. Beard and J. Flack
Surveillance Number: S-09-SED-FHI-013
Date Completed: March 25, 2009

Contractor: Fluor Hanford, Inc. (FHI)
Facility: Hoisting and Rigging
Title: Mobile Crane Maintenance
Guide: DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual
DOE Order 414.1C Quality Assurance
29 CFR 1926.550 Cranes and Derricks
ASME B30.5-2007 Mobile and Locomotive Cranes

Surveillance Scope:

The surveillance was performed to determine the contractor's effectiveness in meeting safety and health standards for mobile crane maintenance.

Surveillance Summary:

The surveillance team assessor's found that improvements are required in order for the mobile crane maintenance program to meet safety and health standards. Improving the documentation of maintenance activities for mobile cranes and the development of a specific written maintenance program for each crane will help to ensure the effectiveness of the mobile crane maintenance program.

The FHI Crane and Rigging organization is responsible for 21 of the 60+ mobile cranes on the Hanford site. These 21 cranes are serviced by the Fleet Services Heavy Equipment maintenance personnel.

Management for Heavy Equipment Mechanics was interviewed and Vehicle Fleet Management Job Cards were reviewed for crane maintenance issues identified during the review of monthly inspections. Crane manufacturer manuals were also evaluated.

The surveillance resulted in the following four findings:

- **S-09-SED-FHI-013-F01:** Identified crane deficiencies were not repaired or defective parts replaced before continuing use.
- **S-09-SED-FHI-013-F02:** The Equipment custodian did not ensure crane maintenance records (i.e. job cards or equivalent) were available for audit in a maintenance file and did not verify that equipment is properly tagged and removed from service when discrepancies are found.
- **S-09-SED-FHI-013-F03:** A preventive maintenance program was not established for each crane.
- **S-09-SED-FHI-013-F04:** A formal written process was not available and/or used before crane outrigger pad keepers were modified.

Surveillance Results:

FINDING: S-09-SED-FHI-013-F01

Identified crane deficiencies were not repaired or defective parts replaced before continuing use.

Requirement(s):

29 CFR 1926.550(a)(5) Any deficiencies shall be repaired, or defective parts replaced, before continued use.

DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual Chapter 14.5, incorporates ASME B30.5-2007, Section 5-2.3.3(a) Any hazardous condition disclosed by the inspection requirements of Section 5-2.1 shall be corrected before operation of the crane is resumed.

Discussion:

The surveillants noted that crane deficiencies were identified on the evaluation of the monthly and annual inspection records. To determine if the deficiencies had been repaired, maintenance records, i.e. job cards were reviewed.

Contrary to the above requirements, serious identified crane deficiencies were not always repaired before continued use. In addition, it could not be determined if all identified deficiencies had been addressed because some repairs are not documented. Examples include the following.

- Job Card 08J00522 (Crane 17T-05918): A right rear tire had been rubbing on a brake line. From discussions with the Heavy Equipment Maintenance Manager, the brake line was bent away from the tire to correct the deficiency. This repair was not recorded on the Job Card.
- Job Card 09B00564 (Crane 17T-05666): The Job Card indicated that a noise was to be checked. No indication was made on the Job Card as to correction or repair.
- Job Card 08K00680 (Crane 17T-05673): A slash in a crane tire was reported. No record of the correction or repair was made on the Job Card.
- Crane 17T-05675: Monthly inspection records for 11/08 and 12/08 indicated an auxiliary hoist had been removed and counterweights had not been installed. This resulted in load chart inaccuracies. Maintenance records back to 10/05 did not indicate when the hoist was removed and/or counterweights installed.

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

FINDING: S-09-SED-FHI-013-F02

The Equipment Custodian did not ensure that crane maintenance records (i.e. job cards or equivalent) were available for audit in a maintenance file, and did not verify that equipment is properly tagged and removed from service when discrepancies are found.

Requirement(s):

DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual Chapter 2.2.8 Management shall designate an individual who shall have custodial responsibility for each crane, hoist, lift truck, or other H&R equipment that requires scheduled maintenance, inspection and record keeping. (The custodian may be thought of as the “equipment owner.”) The custodian can be assigned by facility, geographical area, individual equipment item or other method as deemed appropriate by management. The custodian shall perform the following activities: a.) Verify that operating equipment is properly maintained and maintenance, inspection and testing of the equipment remain current. b.) Ensure that records of the maintenance, repair, inspection, and testing are available for audit in a maintenance file. c.) Verify that equipment is properly tagged and, if necessary, removed from service when discrepancies are found during inspection or operation.

Discussion:

Inspection records indicated that cranes are not always taken out of service when crane inspectors identify serious deficiencies. In addition, maintenance records are incomplete and/or could not be located. For example:

- Crane 17T-05675 monthly inspection records for 11/08 and 12/08 indicated an auxiliary hoist had been removed and counterweights had not been installed. This resulted in load chart inaccuracies and the crane was not removed from service. All available maintenance records were reviewed back to October of 2005. The records did not indicate when the hoist was removed.

- Completed Job Cards are not routinely sent to the Crane and Rigging Equipment Custodian and as a result, the equipment custodian is not able to verify that assigned equipment is properly maintained.
- A review of past inspections of wire rope for crane 17T-4005 showed that the dimensions did not meet Appendix 1 of Procedure 7-GN-179. As an example, the minimum acceptable thickness for a nominal diameter of 1.25 is 1.156. In March of 2009, the measured wire rope diameter was 1.303. In December of 2008, the wire rope diameter measured 1.136. In the November of 2007 inspection, the same rope measured 1.31. It appears the recorded dimension in December of 2008 was a transposition error. However, the dimension that was written down was less than allowable and was not flagged for resolution, maintenance action, or a hazard determination made.

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

FINDING: S-09-SED-FHI-013-F03

A preventive maintenance program was not established for each crane.

Requirement(s):

29 CFR 1926.550(b)(2) All crawler, truck, or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968, Safety Code for Crawler, Locomotive and Truck Cranes. However, the written, dated, and signed inspection reports and records of the monthly inspection of critical items prescribed in section 5-2.1.5 of the ANSI B30.5-1968 standard are not required. Instead, the employer shall prepare a certification record which includes the date the crane items were inspected; the signature of the person who inspected the crane items; and a serial number, or other identifier, for the crane inspected. The most recent certification record shall be maintained on file until a new one is prepared.

DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual Chapter 14.5 incorporates ASME B30.5-2007, Section 5-2.3.1(a) A preventive maintenance program shall be established and should be based on the recommendations outlined in the crane manufacturer's manual. If a qualified person determines it is appropriate, the program should also include that individual's additional recommendations based on a review of the crane application and operations. Dated records should be placed on file.

NOTE: The ANSI B30.5-1968, as referenced by the OSHA standard 29 CFR 1926.550, has been updated several times in the subsequent years. The DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual references the most current ANSI standard that has been renamed ASME B30.5-2007. Both the ANSI and ASME B30.5 require the establishment of an applicable preventative maintenance program.

Discussion:

The crane maintenance checks and the part(s) of crane to be inspected were determined by the mechanic performing the annual inspection. A formal, proceduralized preventative maintenance program specific to each crane was not developed or used.

The crane manufacturers' maintenance and inspection recommendations, such as brake checks and lubrication intervals, were discussed with the Heavy Equipment Maintenance manager. The manual for the Manitowoc and Grove cranes required a maintenance schedule based on crane operation hours. Management stated that this requirement was satisfied by the annual inspection of the cranes, and preventative maintenance was determined by the mechanics performing the inspection.

NOTE: Deficiencies in the crane inspection program are addressed in Surveillance Report S-09-SED-FH-014.

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

FINDING: S-09-SED-FHI-013-F04

A formal written process was not available and/or used before crane outrigger pad keepers were modified.

Requirement(s):

DOE Order 414.1C Section 3.d.(1) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design.

29 CFR 1926.550(a)(16) No modifications or additions which affect the capacity or safe operation of the equipment shall be made by the employer without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

Discussion:

The OSHA requirement above states that the manufacturer's approval is required for any modification which could affect the capacity or safe operation of the equipment. Job Card #08A00778 for a Grove 17T-05681 model crane indicates that mounts for the outrigger pads on the crane had been modified to enable the outrigger pads to remain on the outriggers during transit. FHI personnel stated that the Coast Crane manufacturer's representative had been on site and agreed with the proposed modification, however, no documentation was available which indicated that an engineering evaluation of the proposed modification had been performed. (The surveillants note that Manotovic is the manufacturer of Grove Cranes, not Coast Crane.) Further investigation revealed that the outrigger pad keepers had been modified on six additional cranes.

Contrary to the DOE CRD requirement, FHI has not established a process to ensure proposed crane modifications do not affect the capacity or safe operation of the equipment. Implementation of the process, prior to modifying the crane, will provide assurance that adequate engineering evaluations are performed and specified requirements are met.

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

Contractor Self-Assessment:

The following is a list of the self assessments conducted by the contractor.

April 7, 2009 - Management Assessment ESHQ-QA-09-MA-19, Mobile Crane Operator Qualification

The purpose of the self assessment was to review training implementation for mobile crane operator qualification as specified in the DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual and Fluor Hanford internal training requirements.

The assessment was conducted jointly with a DOE-RL/SED team. The FHI assessment team conducted an above average evaluation. The teams were in concurrence with the "Opportunities for Improvement."

March 27, 2009 - Management Assessment ESHQ-QA-09-MA-10, Extent of Condition - FHI Crane and Rigging Program

The purpose and scope of the self assessment was limited to the follow-up of programmatic weaknesses identified in Noncompliance report, NTS-RL-PHMCGENL-2009-0001. Identified weaknesses included the crane maintenance program.

The assessment was conducted jointly with a DOE-RL/SED team. The FHI team conducted an above average evaluation. The teams were in concurrence with the "Findings and Opportunities for Improvement."

February 2, 2009 – Noncompliance Tracking System report, NTS-RL-PHMCGENL-2009-0001, Potential for Programmatic Weaknesses in the Fluor Hanford Crane and Rigging Program

The purpose and scope of this noncompliance report was limited to FHI crane and hoisting issues identified in the above mentioned January 2009, Causal Analysis Report. This report identified weaknesses in the crane maintenance program.

January 2009 - Causal Analysis Report, Series of Events Involving Hoisting and Rigging Equipment (by Washington River Protection Solutions)

The purpose and scope was limited to a “conduct of a causal analysis” of four events occurring during a five month period in 2008. A team, including representatives from FHI and Washington River Protection Solutions was formed to conduct the investigation and report findings and opportunities for improvement. The crane maintenance program was identified as needing improvements.

In Summary: The March and April 2009, self assessments were conducted jointly with DOE RL and subsequently there are similar findings in this Surveillance Report.

In general, FHI’s self assessment and report writing were found to be professionally conducted and thorough. However, the self assessment process is not adequate in that FHI management has failed to implement or timely implement corrective actions to findings identified in January and February 2009.

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

Management Debriefed:

Jon Geisbush, FHI
George Mata, FHI
Stan Holloman, FHI
Craig Brewer, FHI
Philip Brady, FHI
Dana Morgan, FHI
Richard Redekopp, FHI
Michael, Francis, FHI
Jim Gamin, FHI

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

Division: Safety & Engineering Division (SED)
Surveillant: F. D. Beard and J. Flack
Surveillance Number: S-09-SED-FHI-014
Date Completed: March 25, 2009

Contractor: Fluor Hanford, Inc. (FHI)
Facility: Hoisting and Rigging
Title: Mobile Crane Inspections
Guide: DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual
10 CFR 851, Worker Safety and Health Program
29 CFR 1926 Construction Standard
ASME B30.5-2007 Mobile and Locomotive Cranes

Surveillance Scope:

The surveillance was performed to determine the contractor's effectiveness in meeting safety and health standards for mobile crane monthly and annual inspections.

Surveillance Summary:

The surveillance team assessor's found that improvements are required in order for the mobile crane inspection program to meet standards. Designating a competent person and improving documentation and follow-up of mobile crane inspections will help ensure the effectiveness of the program and reduce the risk of serious crushing, amputation, and/or struck by injury from crane malfunction.

FHI, Crane and Rigging organization is responsible for 21 of the 60+ mobile cranes on the Hanford site. These 21 cranes are operated and inspected monthly (frequent) by FHI Crane and Rigging Services. The annual wire rope inspections are also conducted by Crane and Rigging Services. Fleet Services Heavy Equipment maintenance personnel conduct the annual (periodic) inspections and do the service and preventative maintenance on the cranes.

Completed monthly and annual inspection checklists for the last 12 months were reviewed during this assessment. The checklists did document that cranes are inspected monthly and annually. However, safety standards and policy were not met.

The surveillance resulted in the following one concern, six findings and one observation:

- **S-09-SED-FHI-014-C01:** The FHI Hoisting and Rigging program lacks rigor, formality, and discipline.
- **S-09-SED-FHI-014-F01:** The contractor did not designate a “competent person” to inspect and ensure mobile crane deficiencies are identified and repaired.
- **S-09-SED-FHI-014-F02:** Annual and monthly inspection records were incomplete and/or identified deficiencies were not flagged for follow up.
- **S-09-SED-FHI-014-F03:** The Equipment Custodian did not obtain and keep copies of the annual PM data sheets in the crane maintenance files.
- **S-09-SED-FHI-014-F04:** Monthly and annual inspections records were not made available to all crane inspectors.
- **S-09-SED-FHI-014-F05:** The Equipment Custodian did not establish adequate information retention in the crane maintenance files.
- **S-09-SED-FHI-014-F06:** Handholds and steps were not provided on cranes for access to the cab.
- **S-09-SED-FHI-014-O01:** The continuous use procedure was not used by crane and wire rope inspectors as a step-by-step procedure during inspections.

Surveillance Results:

CONCERN: S-09-SED-FHI-014-C01

The FHI Hoisting and Rigging program lacks rigor, formality, and discipline.

Discussion:

The findings in this report (S-09-SED-FHI-014 - Mobile Crane Inspections), and S-09-SED-FHI-013 - Mobile Crane Maintenance Surveillance, and S-09-SED-FHI-015 - Mobile Crane Training indicate significant programmatic weaknesses in the mobile crane program. The lack of management oversight and accountability has resulted in a program deficient in documentation and assurance of appropriate crane inspections, maintenance, and repairs and missing training program materials. This has increased the risk of a defective crane being put into service. Failures associated with defective cranes can result in serious injuries from crushing and/or struck by hazards resulting from crane malfunctions.

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

FINDING: S-09-SED-FHI-014-F01

The contractor did not designate a “competent person” to inspect and ensure mobile crane deficiencies are identified and repaired.

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 standard.

29 CFR 1926.550(a)(5) The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

29 CFR 1926.32(f) "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.

Discussion:

FHI Hoisting and Rigging Program procedures have not defined the qualifications and the scope of authority for a competent person. In addition, a “competent person,” as defined by OSHA standards, has not been designated. A “competent person” must have the responsibility and authority to take cranes in and out of service along with expert knowledge of the standards, cranes, crane operations, rigging and wire rope, and site conditions.

Current program deficiencies such as: inspection records that are incomplete, and/or with identified deficiencies that have not been appropriately followed up; annual inspection records that are not dated and certified; and cranes put back in service without verifying repair work indicate significant programmatic weaknesses that can be attributed to the lack of a designated competent person. These deficiencies increase the risk of a defective crane being put into service.

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 2/1/93, 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.” In another interpretation letter dated 2/21/86, 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 OSHA standard at the Hanford site is to first establish the qualifications for a competent person. This will provide assurance that the individual(s) performing and/or reviewing the inspections are technically qualified with a

thorough knowledge of the OSHA and ANSI standards, the manufacturer requirements, and the DOE/RL 92-36, Hoisting and Rigging manual requirements for the crane(s) for which they are designated. In addition, this person must have applicable Hanford site and crane hazard recognition skills and be given the authority to restrict crane use until he/she has verified that significant safety issues have been addressed. Currently the FHI Hoisting & Rigging program does not address, define, or designate a person that meets the above criteria.

The applicability of 29 CFR 1926, the OSHA Construction standard vs. 29 CFR 1910, the OSHA General Industry standard, was raised during the course of the surveillance. This was a question since FHI does not consider itself a construction company. This issue has been addressed in an OSHA interpretation letter dated 2/1/99; "It is the activity to be performed...not the company's standard industrial classification (SIC) code that determines which standard applies." Despite FHI's industrial classification, the mobile cranes are used in construction activity and therefore must be inspected in accordance with the requirements in the OSHA Construction standard, 29 CFR 1926.

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

FINDING: S-09-SED-FHI-014-F02

Annual and monthly inspections records were incomplete and/or identified deficiencies were not flagged for follow up.

Requirement(s):

29 CFR 1926.550(a)(6) A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.

DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual Chapter 14.5, incorporates ASME B30.5 - Section 5-2.1.3 Complete inspections of the crane shall be performed by a qualified person at intervals as generally defined in para. 5-2.1.1(b)(2), depending on the crane's activity, severity of service, and environment, or as specifically indicated below. These inspections shall include the requirements of para. 5-2.1.2 and items such as the following. Any deficiencies shall be examined and determination made as to whether they constitute a hazard.

NOTE: The ASME B30.5-Section 5-2.1.3 requires periodic inspection of items (a) through (p) . These items include deformed, cracked, or corroded members in the crane structure and boom, loose bolts or rivets, cracked crane hooks, evidence of leakage, etc.

Discussion:

A review of monthly and annual inspection checklists completed by Hoisting and Rigging and the Heavy Equipment Mechanics inspectors, found many instances of deficiencies, items marked NA, or left blank with no explanation or follow-up. Examples include the following:

- The annual inspection form used for Grove crane 5673 (no date), had three line items for brakes that were not initialed or annotated to indicate the items were satisfactory. The surveillance team was told by management that the particular line item steps were not performed since brakes are not opened for inspections, and completion of these steps would require opening the brake systems. In this case it was explained that the brakes were probably not visible and thus they were not inspected. Heavy Equipment Management also stated that the brakes on this crane did not wear out, therefore opening the brakes for inspection was not necessary. Brake inspections are required by ASME B30.5, Section 5-2.1.3(e). The OSHA standard 29 CFR 1926.550(b)(2) requires the annual inspection certification to be dated.
- The block marked “safety devices” was initialed but not marked as either satisfactory or needs attention on the same annual inspection discussed in the previous bullet. Management stated that this block was not filled in because the mechanics did not know what to check. In addition, the determination of PM elements are not specified, or documented. This is contrary to ASME B.30.5, Section 5-2.1.3, in that any deficiency shall be examined and determination made as to whether it constitutes a hazard.
- A review of past inspections of wire rope for crane 17T-4005 showed that the dimensions did not meet Appendix 1 of Procedure 7-GN-179. As an example, the minimum acceptable thickness for a nominal diameter of 1.25 is 1.156. In March of 2009, the measured wire rope diameter was 1.303. In December of 2008, the wire rope diameter measured 1.136. In the November 2007 inspection, the same rope measured 1.31. It appears, the recorded dimension in December of 2008 was a transposition error. However, the dimension that was written down was less than allowable and was not flagged for resolution, maintenance action, or a hazard determination made.
- On 3/2/09, during an observed inspection of crane 17T-4005, it was noted that hook dimension “C” was recorded as less than 90% of the original dimension. An assessment team member noted to the qualified crane inspector that the measuring device would not provide an accurate measurement and suggested an alternate tool be obtained. The crane inspector stated this was the tool that has been used in the past and the measurement was not a key item because of the lack of wear on the hook. The inspector noted the hook was probably the same dimension as when it was delivered and showed what he believed to be the original finish with a few scratch marks. Procedure 7-GN-068 Step 7.7.3 requires the hook to be removed from service if less than 90% of the original value. The hook was not flagged for resolution, maintenance action or a hazard determination made.
- Step 7.5.10 of Procedure 7-GN-068 requires a functional check of limit switches. During the 3/2/09 inspection, this step was annotated “Boom Kickout”, without indication whether it was satisfactory or not. The crane operator inspector told the assessment team member that he had not performed a functional check of the boom stop limit switch since people were inspecting the boom.
- Several line items on the completed checklist for the same inspection were annotated as “NA” without an indication as to why they were not done. In many of the previous inspections, most of the same items were checked.

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

FINDING: S-09-SED-FHI-014-F03

The Equipment Custodian did not obtain and keep copies of the annual PM data sheets in the crane maintenance files.

Requirement(s):

29 CFR 1926.550(b)(2), All crawler, truck, or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968, Safety Code for Crawler, Locomotive and Truck Cranes. However, the written, dated, and signed inspection reports and records of the monthly inspection of critical items prescribed in section 5-2.1.5 of the ANSI B30.5-1968 standard are not required. Instead, the employer shall prepare a certification record which includes the date the crane items were inspected; the signature of the person who inspected the crane items; and a serial number, or other identifier, for the crane inspected. The most recent certification record shall be maintained on file until a new one is prepared.

7-GN-179 Section 6.7 Annual Mobile Crane Inspections Copies of PM data sheets shall be obtained by the Equipment Custodian and kept in the crane maintenance files. Vehicle Fleet Management job cards shall be kept by Fleet Maintenance Shop.

Discussion:

Annual inspection checklists that are completed by the Heavy Equipment Maintenance organization are not always sent to the equipment custodian. Identified deficiencies from the annual inspection are authorized and tracked using the maintenance job card. The completed annual checklists are filed with the job card in Building 4707.

The equipment custodian is responsible to ensure the annual inspection certificates are part of the maintenance files. 29 CFR 1926.550(b)(2) requires an annual inspection certificate to be maintained on file.

Maintenance file information should provide a source for comparing present conditions with past conditions to determine whether existing conditions show a trending pattern of wear, deterioration, or other comparable factors that may compromise safe, continued use of the crane.

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

FINDING: S-09-SED-FHI-014-F04

Monthly and annual inspections records were not made available to all crane inspectors.

Requirement(s):

DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual Chapter 14.5, incorporates ASME B30.5 2007 - Section 5-2.1.5 Dated records for periodic inspections shall be made on critical items such as brakes, crane hooks, ropes, hydraulic and pneumatic cylinders, and hydraulic and pneumatic relief pressure valves. Records should be kept where they are available to appointed personnel.

7-GN-179 Section 6.4 Annual Mobile Crane Inspections, Copies of annual inspection procedure shall be made available for use and can be obtained from your immediate supervisor or the Equipment Custodian.

Discussion:

Inspectors in different organizations do not have access to or refer to inspection checklists that have recently been completed for a crane. For example, Crane and Rigging organization inspectors do not have a copy of the most recently completed annual inspection checklist from the Heavy Equipment Mechanics organization (Fleet Maintenance). Fleet maintenance is not provided copies of the Crane and Rigging inspection results. The inclusion and use of other completed organizational inspection checklists could improve the quality of inspections and follow-up of maintenance activities associated with identified deficiencies.

In addition, maintenance file information provides a source for comparing present conditions with past conditions to determine whether existing conditions show a trending pattern of wear, deterioration, or other comparable factors that may compromise safe, continued use of the crane.

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

FINDING: S-09-SED-FHI-014-F05

The Equipment Custodian did not establish adequate information retention in the crane maintenance files.

Requirement(s):

DOE/RL-92-36 Hanford Site Hoisting and Rigging Manual Chapter 14.5.8.2 Crane maintenance files shall contain the following documentation, as applicable, and should be retained as long as the crane is assigned to a Hanford Site DOE contractor.

Discussion:

Crane maintenance files did not contain all of the items required by the Hanford Site Hoisting and Rigging Manual. Missing items included the following.

- Incomplete monthly and periodic (annual) inspection records
- Load test results

- Operational test results
- Documentation of altered, replaced, or repaired load sustaining parts
- Records of special inspections on safety-related items such as brakes, crane hooks, ropes, hydraulic and pneumatic cylinders, and hydraulic and pneumatic relief pressure valves
- Copies of waivers, exemptions, hostile environment plans, or similar documentation applicable to the crane (to include manufacturer's safety bulletins, safety alerts, and product recall information)
- Documentation for replacement ropes
- Manufacturer certifications for replacement ropes
- Records of loading indicating devices, anti-two block, two-block warning, two-block damage prevention systems.

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

FINDING: S-09-SED-FHI-014-F06:

Handholds and steps were not provided on cranes for easy access to the cab.

Requirement(s):

29 CFR 1926.550(a)(13)(ii) Guardrails, handholds , and steps shall be provided on cranes for easy access to the car and cab, conforming to American National Standards Institute B30.5.

DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual Chapter 14.5, incorporates ASME B30.5-2007 Section 5-1.8.3 On all crawler and wheel-mounted cranes handholds, steps or both shall be provided, as needed, to facilitate entrance to and exit from the operator's cab and the carrier cab.

NOTE: The ANSI B30.5-1968, (American National Standards Institute) as referenced by the OSHA standard 29 CFR 1926.550, has been updated several times in the subsequent years. The DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual references the most current ANSI standard that has been renamed ASME B30.5-2007. Both ANSI and ASME B30.5 require access accommodations for entry/exit from the operators cab.

Discussion:

Crane operators accessing the operator cab for the 250 ton Manitowoc crawler crane (17T-4005) used the crawler tracks as hand and foot holds to climb approximately 5.5 feet. No other alternative was provided to access the platform/walkway to the cab.

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

OBSERVATION: S-09-SED-FHI-014-O01

The continuous use procedure was not used by crane and wire rope inspectors as a step-by-step procedure during inspections.

Discussion:

On 3/2/09, an assessment team member observed the inspection of crane 17T-4005. It was noted that procedure 7-GN-068, a continuous use procedure, was not used by the inspector as a step-by-step procedure during the inspection. (When asked where his procedure was, the inspector removed it from the cab of his truck, showed it to the assessor, replaced it in the cab, and proceeded to perform the inspection without referring to the step-by-step procedure.) When the inspector was asked about the step by step use of the procedure he noted the procedure did not work in a step by step fashion. He stated he would get the procedure out and use the checklist when he got to the point of signing the steps off. As a result, the checklist was used for the inspection without the procedure. (See 7-GN-068 CONTINUOUS USE Crane and Rigging Services Maintenance Procedure, Monthly Mobile Crane Inspections 1.0 and 7-GN-179 CONTINUOUS USE Crane and Rigging Services Maintenance Procedure, Annual Mobile Crane Inspections 1.0.)

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

Contractor Self-Assessment:

The following is a list of the self assessment reports, conducted by the contractor that identified crane related hazards:

April 7, 2009 - Management Assessment ESHQ-QA-09-MA-19, Mobile Crane Operator Qualification

The purpose of the self assessment was to review training implementation for mobile crane operator qualification as specified in the DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual and FHI internal training requirements.

The assessment was conducted jointly with a DOE-RL/SED team. The FHI assessment team conducted an above average evaluation. The teams were in concurrence with the "Opportunities for Improvement."

March 27, 2009 - Management Assessment ESHQ-QA-09-MA-10, Extent of Condition – Fluor Hanford Crane and Rigging Program

The purpose and scope of the self assessment was limited to the follow-up of programmatic weaknesses identified in Noncompliance report, NTS-RL-PHMCGENL-2009-0001. Several issues related to the crane inspection process were identified.

The assessment was conducted jointly with a DOE-RL/SED team. The FHI team conducted an above average evaluation. The teams were in concurrence with the "Findings and Opportunities for Improvement."

February 2, 2009 – Noncompliance Tracking System report, NTS-RL-PHMCGENL-2009-0001, Potential for Programmatic Weaknesses in the Fluor Hanford Crane and Rigging Program

The purpose and scope of this noncompliance report was limited to FHI crane and hoisting issues identified in the below mentioned, January 2009, Causal Analysis Report. Inspection records indicated the wire rope inspections were not complete.

January 2009 - Causal Analysis Report, Series of Events Involving Hoisting and Rigging Equipment (by Washington River Protection Solutions)

The purpose and scope was limited to a “conduct of a causal analysis” of four events occurring during a five month period in 2008. A team, including representatives from FHI and Washington River Protection Solutions was formed to conduct the investigation and report findings and opportunities for improvement.

In Summary: The March and April 2009, self assessments were conducted jointly with DOE RL and subsequently there are similar findings in this Surveillance Report.

In general, FHI’s self assessment and report writing were found to be professionally conducted and thorough. However, the self assessment process is not adequate in that FHI management has failed to implement or timely implement corrective actions to findings identified in January and February 2009.

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

Management Debriefed:

Jon Geisbush, FHI
George Mata, FHI
Stan Holloman, FHI
Craig Brewer, FHI
Philip Brady, FHI
Dana Morgan, FHI
Richard Redekopp, FHI
Michael, Francis, FHI
Jim Gamin, FHI

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

Division: Safety & Engineering Division (SED)
Surveillant: F. D. Beard and J. Flack
Surveillance Number: S-09-SED-FHI-015
Date Completed: March 25, 2009

Contractor: Fluor Hanford, Inc. (FHI)
Facility: Hoisting and Rigging
Title: Mobile Crane Training
Guide: DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual

Surveillance Scope:

The surveillance was performed to determine contractor effectiveness in meeting training standards for mobile crane operators and inspector training.

Surveillance Summary:

The surveillance team assessor's found that improvements are required in order for the mobile crane training program to meet training standards. Improving the documentation of training activities for mobile cranes operators and inspectors will help to ensure the effectiveness of the mobile crane training program.

The Hoisting & Rigging Training Program Description, Rev. 17, dated December 29, 2008, requires mobile crane operators, inspectors and wire rope inspectors to be qualified and re-qualified every 3 years. Inspectors become qualified and maintain qualification by taking required training classes and passing an exam. Mobile crane inspectors must also complete an on-the-job evaluation limited to those crane functions necessary to perform an inspection.

In Crane and Rigging, all 15 of the crane operators are also qualified as crane inspectors and, with 1 exception, qualified wire rope inspectors. In Fleet Service Heavy Equipment maintenance, 12 of the Heavy Equipment Mechanics are qualified as crane inspectors and 21 as wire rigging inspectors.

	Crane & Rigging	Maintenance	Total
Crane Operators	15	NA	15
Crane Inspectors	57	12	69
Wire Rope Inspec	59	21	80

Training program files and individual training records were reviewed during this assessment. In addition, the Mobile Crane Inspection Re-Qualification class #042932 was audited on 3/2/09.

The surveillance resulted in the following two findings:

- **S-09-SED-FHI-015-F01** The contractor did not ensure training materials used on 3/2/09 were approved prior to delivery and auditable copies of training program documentation were maintained in the Training Records.
- **S-09-SED-FHI-015-F02** The contractor did not ensure vendor contract deliverables for copies of course presentation materials, lesson plans and handouts be provided to HAMMER in accordance with contract and HAMMER procedure requirements.

Surveillance Results:

FINDING: S-09-SED-FHI-015-F01

The contractor did not ensure training materials used on 3/2/09 were approved prior to delivery and auditable copies of training program documentation were maintained in the Training Records.

Requirement(s):

DOE/RL-92-36 Hanford Site Hoisting and Rigging Manual 4.6.2

The following documents are considered course record: course description, current lesson plan, applicable student handouts, performance evaluations, and written examinations or bank of test questions.

Hoisting & Rigging Training Program Description, Rev. 17, Section 3.1 page 2

Director, HAMMER/FHI Training is responsible for ensuring: H&R training materials are approved prior to delivery. Auditable copies of training documentation are maintained by Training Records.

Discussion:

An interview was conducted with the instructor for 042930 Mobile Crane Inspection class on 3/2/09. The instructor stated he received a copy of the ASME B30-2007 standard that morning. He also said the exam had been made up Sunday night and the manual had been updated and provided to him on Friday. There was no evidence, (i.e. signature or initials) that the lesson plan and exam used for the morning class had been approved.

The, HAMMER Training Manager stated he did not know where the training program, approved lesson plans, and exam were located, although he did agree that he was one of the approvers of the lesson plans.

Over a three week period, the Project/Facility manager responsible for the hoisting and rigging training program at HAMMER was asked repeatedly for a copy of the 042930 Mobile Crane Inspection training program. All that could be located was an empty file folder.

Due to the lack of a training program file for Mobile Crane Inspectors, it could not be determined if the course was conducted in accordance with established requirements for course content, delivery, and student evaluation.

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

FINDING: S-09-SED-FHI-015-F02

The contractor did not ensure vendor contract deliverables for copies of course presentation materials, lesson plans and handouts be provided to HAMMER in accordance with contract and HAMMER procedure requirements.

Requirement(s):

HAMMER/Hanford Training, Maintaining Training Program Files, Desk Instruction; Rev. 3, Section 5.4 - page 2

Vendor Owned/Delivered Courses – The program file should also contain the student handout, lesson plan and other material used in the presentation of the training activity. Requirements to provide HAMMER/Hanford Training with a copy of the vendor’s course presentation materials, lesson plans, and handouts must be incorporated into contracts with vendors.

Discussion:

During interviews with training management, questions were asked about training and training materials provided by vendors. Management stated the vendor-provided training for new cranes and/or crane attachments were organized and contracted through FHI Hoisting and Rigging program and Energx. He was not sure about training materials and

HAMMER vendor-provided training. The HAMMER management followed up and found HAMMER was not ensuring vendor contract deliverables for copies of course presentation materials, lesson plans and handouts were provided as required.

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

Contractor Self-Assessment:

The following is a list of the self assessments conducted by the contractor.

April 7, 2009 - Management Assessment ESHQ-QA-09-MA-19, Mobile Crane Operator Qualification

The purpose of the self assessment was to review training implementation for mobile crane operator qualification as specified in the DOE/RL 92-36 Hanford Site Hoisting and Rigging Manual and FHI internal training requirements.

The assessment was conducted jointly with a DOE-RL/SED team. The FHI assessment team conducted an above average evaluation. The teams were in concurrence with the "Opportunities for Improvement."

March 27, 2009 - Management Assessment ESHQ-QA-09-MA-10, Extent of Condition - FHI Crane and Rigging Program

The purpose and scope of the self assessment was limited to the follow-up of programmatic weaknesses identified in Noncompliance report, NTS-RL-PHMCGENL-2009-0001. Identified weaknesses were identified in the training for crane inspector requalification.

The assessment was conducted jointly with a DOE-RL/SED team. The FHI team conducted an above average evaluation. The teams were in concurrence with the "Findings and Opportunities for Improvement."

February 2, 2009 – Noncompliance Tracking System report, NTS-RL-PHMCGENL-2009-0001, Potential for Programmatic Weaknesses in the Fluor Hanford Crane and Rigging Program

The purpose and scope of this noncompliance report was limited to FHI crane and hoisting issues identified in the following mentioned January 2009, Causal Analysis Report. This report identified weaknesses in the crane operator training on the more sophisticated LMI computers installed on the newer cranes.

January 2009 - Causal Analysis Report, Series of Events Involving Hoisting and Rigging Equipment (by Washington River Protection Solutions)

The purpose and scope was limited to a “conduct of a causal analysis” of four events occurring during a five month period in 2008. A team, including representatives from FHI and Washington River Protection Solutions was formed to conduct the investigation and report findings and opportunities for improvement. The crane operator training was identified as needing improvements.

In Summary: The March and April 2009, self assessments were conducted jointly with DOE RL and subsequently there are similar findings in this Surveillance Report.

In general, FHI’s self assessment and report writing were found to be professionally conducted and thorough. However, the self assessment process is not adequate in that FHI management has failed to implement or timely implement corrective actions to findings identified in January and February 2009.

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

Management Debriefed:

Jon Geisbush, FHI
George Mata, FHI
Stan Holloman, FHI
Craig Brewer, FHI
Philip Brady, FHI
Dana Morgan, FHI
Richard Redekopp, FHI
Michael, Francis, FHI
Jim Gamin, FHI



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

0901025 A
CC Recd: 05/05/2009

09-SED-0097

MAY 05 2009

Mr. D. G. Ruscitto, President
and Chief Executive Officer
Fluor Hanford, Inc.
Richland, Washington 99352

Dear Mr. Ruscitto:

CONTRACT NO. DE-AC06-96RL13200 – FHI SAFETY SOFTWARE QUALITY
ASSURANCE PROGRAM SURVEILLANCE (S-09-SED-FHI-005)

The purpose of this letter is to transmit RL Surveillance Report S-09-SED-FHI-005 dealing with the effectiveness of the FHI safety software quality assurance program. The report identifies one finding and two observations. Based on the results of this surveillance, which identified a significant issue involving the control of safety and non-safety software, you are requested to provide a corrective action plan in accordance with CRD O 470.2B (Supplemented Rev. 2), within 60 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:

J. E. Mitchell, FHI
W. H. Preivity, FHI
M. S. Strickland, FHI

Department of Energy Richland Operations Office Surveillance Report

Division: Safety & Engineering Division (SED)

Surveillants: Cliff Ashley, Krishna Vadlamani, Kyle Rankin

Surveillance Number: S-09-SED-FHI-005

Date Completed: March 31, 2009

Contractor: Fluor Hanford, Inc. (FHI)

Facility: Cross Cutting

Title: FHI Safety Software Quality Assurance Program

Guide: DOE G-414.1-4

Surveillance Scope:

The scope of the Software Quality Assurance (SQA) surveillance was to verify that the contractor fully identified safety software that is owned by them, and that this software was being adequately managed and maintained to an adequate level of quality.

Surveillance Summary:

The surveillants, led by the DOE-RL SQA Subject Matter Expert (SME), performed the following activities in order to evaluate the FHI SQA Program:

- Reviewed HNF-PRO-309 Rev. 7 Controlled Software Management.
- Reviewed FHI List of Safety Software.
- Reviewed the Software Management Plans and Implementation Plans for WSCF LIMS, Horizon LIMS, and CFAST.
- Reviewed the Hanford Information Systems Inventory for nine FHI safety software.
- Interviewed the respective Software Owners and Project Leads.
- Interviewed the Chief Information Officer who is the FHI SQA Program Manager.

In summary, FHI SQA Program Management had not adequately identified all the safety software they should manage and maintain. The surveillants were concerned that FHI and CHPRC are still determining ownership of their safety software (of which total number ranges from 25 to 30 applications for each company) approximately five months after CHPRC assumed responsibility for prior FHI work scope. Based upon this surveillance, the surveillants foresee a significant emerging issue regarding the lack of ownership, management and quality applied to non-safety software. Non-safety software represents well over a thousand applications or approximately 95% of all software in use.

The surveillants consider the FHI SQA program as needing improvement. The surveillance resulted in the identification of the following finding and two observations.

- **S-09-SED-FHI-005-F01:** 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.
- **S-09-SED-FHI-005-O01:** CFAST Version 3.1.7 appears to be out of date and in need of being retired.
- **S-09-SED-FHI-005-O02:** Supporting documentation for Horizon LIMS safety software verification & validation work was not easily retrievable.

Surveillance Results:

Finding: S-09-SED-FHI-005-F01

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.

Requirement(s):

DOE O 414.1C, Attachment 2, Section 5.b, states, "Identify, document, and maintain safety software inventory."

HNF-PRO-309, Rev. 6 and Rev. 7 (Dated January 26, 2009) Section 5.6, Approval for Use, Step 1, Step 3, and Step 5 for Software Owner, Software SME, and FHI CIO (respectively) state, "Review the Hanford Information Systems Inventory (HISI) registration and software application documentation, as listed in HISI, for completeness, consistency, and adequacy."

Discussion:

Of the 38 safety software applications the FHI CIO/SQA Program Manager initially identified as active applications owned by FHI, four applications were later identified as being owned by CHPRC, and nine applications should have been retired by FHI. Also, two FHI-owned safety software applications (RFAR and EuFEDMS) were not listed as safety software. This is contrary to requirements.

In more detail, after the surveillance period, RL reviewed the various report capabilities in HISI and obtained a list of FHI owned Level A, B, C, and D software that included software applications that were not present when querying specific software levels. From this review, the surveillant determined that two additional safety software, one at Level A (RFAR) and one at Level B (EuFEDMS), had not been previously provided to the surveillance team. This calls into question the accuracy of the information contained in HISI, and raises a concern that additional safety software may not be adequately identified.

Based upon the number of non-compliances noted in this area, and the inaccuracy of the FHI inventory of safety software as well as non-safety software, the surveillants judged this as a programmatic issue that needs corrective action for all FHI software.

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

Observation: S-09-SED-FHI-005-001

CFAST Version 3.1.7 appears to be out of date and in need of being retired.

Discussion:

The SME met with the FHI Software Owner/Project Lead of CFAST (Versions 3.1.7 and 6.0.10) and reviewed the supporting documentation for this safety software (Level A). During this meeting, the SME determined that both versions of CFAST are actively used (Version 3.1.7 used by CHPRC Waste Management Project, and Version 6.0.10 used by FFS-Fire Protection Engineering, and by FHI-Fire Prevention (CFAST Software Owner/Project Lead). A review of the associated authorized user lists for these versions showed that the list for 6.0.10 was adequate. However, the user list for version 3.1.7 only listed the CFAST Software Owner/Project Lead, when in fact this version is used primarily by CHPRC personnel. Improvement is needed to ensure the users list of safety software is current and accurately lists the authorized users.

The older version of CFAST uses DOS based software programming, while the newer version (6.0.10) is more user friendly and uses a Microsoft Windows based software. According to the RL-Fire Protection SME, both versions use the identical mathematical formulas/calculations. However, according to the NIST/CFAST Version History, Version 3.1.7 was revised several times to correct errors. Based upon the review of the CFAST Version history (eight versions total), the FHI SQA Program Manager, CFAST

Owner/Project Lead, and CFAST Version 3.1.7 users should consider retirement of the older version and replace it with CFAST Version 6.0.10.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-SED-FHI-005-002

Supporting documentation for Horizon LIMS safety software verification & validation work was not easily retrievable.

Discussion:

The SME conducted a review of (Multi) LIMS and Horizon LIMS safety software used by the Waste Sampling and Characterization Facility (WSCF), and observed the following:

1. From Pre-Verification & Validation (V&V) "Quality Control Review" documentation reviewed, the SME was able to observe where posted waste sample values (raw data) agreed with the Horizon LIMS reported value within the specified significant figures for each inorganic/analyte.
2. From the WSCF Analytical Results Report (V&V report documentation), the SME reviewed two randomly chosen data sets, and the WSCF Horizon LIMS Owner/Project Lead could not obtain satisfactory correlation between the raw data (input) and the Horizon LIMS reported values (output).

According to the primary Owner/Project Lead, the lab technician had apparently included the incorrect raw data sheet within the Horizon LIMS V&V report notebook. Later during the surveillance period the Owner/Project Lead had improved the organization of this software supporting documentation, and with minor exception the SME observed that the raw data (input) could now be adequately correlated to the Horizon LIMS reported values within V&V report.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

Based upon the short duration of the FHI interim contract (which began October 1, 2008), FHI did not have the opportunity to conduct a similar assessment of their SQA program.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Jim Mitchell, FHI

Troy Dale, FHI

Dave Mertz, FHI



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

SEP 30 2009

09-AMSE-0070

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL14655 - WASHINGTON CLOSURE HANFORD LLC
COMPUTER AIDED EARTHMOVING SYSTEM SOFTWARE SURVEILLANCE (S-09-
AMSE-WCH-ERDF-001)

The purpose of this letter is to transmit RL Surveillance Report S-09-AMSE-WCH-ERDF-001 dealing with the Computer Aided Earthmoving System used at the Environmental Restoration Disposal Facility. The report identifies two findings and one observation. Based on the results of this surveillance RL requires Lead Assessor closure of finding S-09-AMSE-WCH-ERDF-001-F01. If you have any questions, please contact me, or your staff may contact Al Hawkins, RL Quality Assurance Manager, 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:KMR

Enclosure

cc w/encl:
S. L. Feaster, WCH
T. A. Harris, WCH

U.S Department of Energy, Richland Operations Office Surveillance Report

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

Surveillant: Kyle Rankin

Surveillance Number: 09-AMSE-WCH-ERDF-001

Date Completed: August 24, 2009

Contractor: Washington Closure Hanford LLC (WCH)/S.M. Stoller Corporation (Stoller)

Facility: Environmental Restoration Disposal Facility

Title: Computer Aided Earthmoving System (CAES) Software Surveillance

Guide: N/A

Surveillance Scope:

This surveillance covered RL's review of the contractor's (WCH/Stoller) management of the CAES software and the CAES Verification Report spreadsheet. The surveillance focused on a review of software work activities to determine if proper documentation exists in accordance with implementing procedures, a review of software work documentation to determine the adequacy of the documentation, and a review of the software to determine if the issues of falsified compaction records are resolved.

Surveillance Summary:

The surveillance was conducted from August 10, 2009 through August 24, 2009 by the RL Software Quality Assurance (SQA) Subject Matter Expert (SME).

The surveillance determined that use of the CAES software and CAES Verification Report spreadsheet adequately fixes the issue of previous falsification of compaction records. To ensure compaction is adequately addressed, the contractor performed extensive testing on various lift heights and waste configurations to determine the lift thickness and soil to debris ratios for different waste streams. The testing resulted in a set of guidelines for lift thickness and soil to debris ratios that ensures compaction and effectively removes the process of compaction testing that led to the previous records falsification event. The procedure Stoller uses for compaction uses the CAES system as the primary means for demonstrating compaction; however, if the CAES system is not operational, Stoller has alternate methods for compaction verification, that

have been approved by the DOE and EPA, that rely upon physical measurement of lift thickness and a visual count of the number of passes that meets the guidelines outlined in their test procedure.

This surveillance determined the contractor (WCH) and the Environmental Restoration Disposal Facility (ERDF) subcontractor (Stoller) have not appropriately managed the life cycle activities of the CAES software and the CAES Verification Report spreadsheet. The surveillance identified two findings and one observation.

- **S-09-AMSE-WCH-ERDF-001-F01:** Stoller procedures do not adequately document lifecycle activities of the CAES software and CAES Verification Report spreadsheet.
- **S-09-AMSE-WCH-ERDF-001-F02:** Flowdown of Software Quality Assurance requirements into the Stoller contract were inadequate.
- **S-09-AMSE-WCH-ERDF-001-O01:** The roles and responsibilities between WCH and Stoller for the management of the CAES software and CAES Verification Report spreadsheet are unclear.

Surveillance Results:

Finding: S-09-AMSE-WCH-ERDF-001-F01:

Stoller procedures do not adequately document lifecycle activities of the CAES software and CAES Verification Report spreadsheet.

Requirement(s): ASME NQA-1-2000, Subpart 2.7, Section 100, states in part, "The appropriate requirements of this Subpart shall be implemented through the policies procedures, plans, specifications, or work practices, etc., that provide the framework for software engineering activities."

Discussion:

During a review of the Stoller procedures it was found that Stoller has one procedure, 05-66, *Computer Aided Earthmoving System (CAES) Application*, that covers the CAES application implementation. The purpose of the procedure is to describe the processes and activities for operating and maintaining the CAES software. This procedure provides an adequate description of the hardware and software involved in the CAES software as well as describing how the system is used. The procedure fails to include a discussion of software life cycle activities, such as software configuration management and verification and validation, for the CAES software and CAES Verification Report spreadsheet that would allow Stoller to appropriately manage the combined system. An interview with the Stoller Work Planner revealed that they are aware that their procedures lack this documentation and they were going to meet in the future to discuss how they want to proceed. The importance of the software life cycle documentation is, under proper software configuration management, Stoller would have the procedures in place to demonstrate how they would deal with changes to the software and how they would ensure such changes would not affect the end product.

RL Lead Assessor Closure Required:

YES [X]

NO []

Finding: S-09-AMSE-WCH-ERDF-001-F02:

Flowdown of Software Quality Assurance requirements into the Stoller contract were inadequate.

Requirement(s): DOE O 414.1C, Attachment 2, states in part, "The contractor is responsible for flowing down the requirements of this CRD to subcontractors at any tier to the extent necessary to ensure the contractor's compliance with the requirements and the safe performance of work."

Discussion:

When this software was first purchased, WCH ran this software through their Software Graded Level Checklist and determined it was not safety software. As a result, WCH did not put any additional Software QA requirements past DOE O 414.1B, such as NQA-1-2000, into the Stoller contract and allowed Stoller to manage and operate the software using best business practices. The CAES software procedure confirms this software is used to monitor and provide objective evidence of compaction at ERDF. As such, this software provides the Quality Record that compaction was performed to agreed upon methods and should therefore have led WCH to ensure their subcontractor is placing a higher degree of rigor on the operation and management of the software by providing graded software requirements into the Stoller contract.

RL Lead Assessor Closure Required:

YES []

NO[X]

Observation: S-09-AMSE-WCH-ERDF-001-O01:

The roles and responsibilities between WCH and Stoller for the management of the CAES software and CAES Verification Report spreadsheet are unclear.

Discussion:

This surveillance started with a review of WCH documentation for the software. Initially, the contractor (WCH) was unable to find any documentation on the development and management of the CAES software. It was determined that the software was procured at a time when the contractor's procedures did not require documentation for Level D Commercial Design and Analysis software. After further review, WCH determined the software was purchased by and belonged to their subcontractor Stoller. Additionally, during this initial review of the software, the SQA SME found that a spreadsheet had been developed during the placement optimization tests called CAES Verification Report. The spreadsheet takes the data from the CAES software and puts it into a format that graphically presents the lift thickness, number of wheel passes, and elevation of the grid block that was compacted. This information, along with a page that indicates whether or not the grid block passes thickness and compaction passes, is printed and signed as the QA record to demonstrate compaction. In an interview with the WCH ERDF Senior Engineer, the SQA SME found that WCH had worked to develop this system to reach operational status and the WCH ERDF Senior Engineer participated in creating the CAES Verification Report spreadsheet to assist in determining the lift thickness. It was determined that

neither WCH nor Stoller had the documentation supporting the spreadsheet development and as with the CAES software, Stoller was the owner/operator of the spreadsheet.

The CAES software was purchased by Stoller in 2007 through direction from WCH. In interviews with the WCH ERDF Senior Engineer and the Stoller Project Manager and Work Planner it was found that Stoller had not taken control of the CAES software and CAES Verification Report spreadsheet until March of 2009. This resulted in a substantial period of time existing from the purchase date in 2007 through March of 2009 that the software was not managed/operated by Stoller and WCH was actively involved in the development of the system. During this time, WCH personnel operated the CAES software and CAES Verification Report spreadsheet, printed the quality records from the spreadsheet, and signed them along with Stoller personnel attesting that the compaction and number of passes met requirements. Subsequently, during the development of the spreadsheet, WCH placed a password on the spreadsheet so that no inadvertent changes to the spreadsheet occurred during use. In an interview with the Stoller Work Planner the SQA SME found that WCH maintained control of the CAES Verification Report spreadsheet password and the Stoller Work Planner, who is the sole user of the CAES system, does not have access to that information. This is not consistent with Stoller being responsible for the management and operation of the CAES software and CAES Verification Report spreadsheet.

RL Lead Assessor Closure Required:

YES

NO



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

09-AMSE-0064

AUG 26 2009

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Spencer:

CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF SURVEILLANCE REPORT
S-09-AMSE-WCH-QA-001, CORRECTIVE ACTION EFFECTIVENESS

The purpose of this letter is to transmit RL Surveillance Report S-09-AMSE-WCH-QA-001 dealing with the review of the WCH effectiveness review process. The report identified no findings, observations, or concerns. No formal response is required. If you have any questions, you may contact us, or your staff may contact Ray J. Corey, Assistant Manager for Safety and Environment, on (509) 376-0108.

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

Jewel J. Short
Contracting Officer

AMSE:SEC

Attachment

cc w/attach:

S. L. Feaster, WCH
T. A. Harris, WCH
M. M. Hassell, WCH
D. H. Houston, WCH
D. L. Plung, WCH
R. J. Skwarek, WCH

U.S. Department of Energy Richland Operations Office Surveillance Report

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

Surveillant: Steven E. Chalk

Surveillance Number: S-09-AMSE-WCH-QA-001

Date Completed: June 22, 2009

Contractor: Washington Closure Hanford LLC (WCH)

Facility: Cross-Cutting

Title: Corrective Action Effectiveness

Guide: N/A

Surveillance Scope: The purpose of this surveillance is to evaluate the adequacy, implementation, and effectiveness of the WCH QA effectiveness review process in relation to requirements in 10CFR830, Subpart A, DOE O 414.1C, and ASME NQA-1.

Surveillance Summary: This surveillance was performed by the Richland Operations Office (RL) Quality Assurance subject matter expert (SME) assigned to the WCH contract. Implementing procedures were reviewed, contractor individuals involved in the effectiveness review process were interviewed, and document reviews of two recent effectiveness reviews to evaluate the WCH process for adequacy, implementation, and effectiveness. WCH training and qualifications of assessors was not a part of this surveillance.

The surveillance focused on contractor QA procedures implementing the effectiveness review process, examples of effectiveness reviews to determine adequacy of implementation, and interviewing individuals using the effectiveness review processes to determine their level of knowledge.

Criteria for this surveillance is the effectiveness review process consistency with the guidelines of DOE G 414.1-5 and contractor personnel knowledge of the procedures that govern effectiveness reviews.

The reviewer determined the WCH process for assessing corrective actions effectiveness is being performed satisfactorily and in accordance with the applicable regulations and contractor procedures. The surveillance resulted in no concerns, findings or observations.

Requirements: A competent, robust, periodic and independent oversight process is to provide the essential source of feedback to verify expectations are being met and identify the effectiveness of corrective actions. QA performance assurance activities verify whether standards and requirements are being met. Corrective action effectiveness through conscious, directed, independent reviews shall be determined for safety and performance improvement.

Attributes of a compliant process shall ensure results from performance assurance activities are effectively integrated into the performance improvement processes, such that they receive adequate and timely attention. Linkages with other performance monitoring inputs shall be examined, causal analyses conducted, as needed, corrective actions tracked to closure, and effectiveness verified to prevent future occurrences.

Documents Reviewed:

- WCH-51, Rev. 3, Quality Assurance Program Document (QAPD)
 - WCH-307, Rev. 2, Assessment Program Plan Document
 - QA-1-1.11, Rev. 3, Independent Assessments
 - QA-1-1.2, Rev 8, Corrective Action Management
 - QA-1-1.4, Rev. 2, Causal Analysis
 - QA-1-1.6, Rev. 1, Integrated Assessment Schedule
 - QA&S-2009-002, Independent Assessment of Software QA
 - QA&S-2009-003, Independent Assessment of special Processes
-

Surveillance Results:

Document Review

The contractor's QAPD (WCH-51) contains a clearly defined Management Assessment (self-assessment) process that is contained in the QA procedures reviewed that meets the intent of 10 CFR 830.122 (J), Criterion 10-Assessment/Independent Assessment. The WCH QA organization is responsible for planning and performing the independent assessments to determine the compliance with and effectiveness of the QAPD. The contractor corrective action management system includes actions to determine the adequacy and effectiveness of the corrective and preventive actions for significant problems.

The Assessment Program Plan Document (WCH-307) contains the requirements for implementing the assessment program and includes requirements specific to evaluating the effectiveness of the QA programs, processes, and activities. The Independent Assessment procedure (QA-1-1.11) provides the detailed instructions for performing independent assessments.

The Corrective Action Management (CAM) procedure (QA-1-1.2) contains guidelines for developing corrective actions that includes identifying what resources are required to ensure the

WCH Surveillance: S-09-AMSE-WCH-QA-001

effectiveness of the corrective action. Attachment 3 of the CAM procedure specifies the content of corrective action plans shall address the problem in concert with actions needed to address effectiveness reviews. The Integrated Assessment Schedule procedure (QA-1-1.16) includes the following two bullets as items to be considered when developing their assessment schedule:

- Follow-up of Corrective Actions from a previous assessment;
- Consideration of previous assessment results, trends, corrective actions, effectiveness, and ancillary information (e.g., information from other sources or regulating bodies, etc.);

No issues found.

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

Review of Previous Assessments

The following two Independent Assessments were presently underway so only the assessment plans were reviewed. The plans were found to be acceptable by including verifications that performance criteria were being met and the effectiveness of the program determined.

- QA&S-2009-002
- QA&S-2009-003

The following completed independent assessments were reviewed for compliance with procedures:

- QA&S-2008-001, dated March 5, 2008, *QA Assessment of Engineering Services*. The evaluation was performed on the WCH engineering design program for adequacy and effectiveness of design control. The implementation of the WCH QAP requirements (WCH-51) was reviewed and a gap analysis performed against the requirements of NQA-1-2000 and DOE Order 414.1-2A, *Quality Assurance Management System Guide*. One finding and two observations were identified.
- QA&S-2008-003, dated December 15, 2008, *Subcontractor/Supplier Selection, Evaluation and Monitoring*. The scope was the personnel and organizations involved in the development of procurement requisitions, requests for proposals, bid receipt and evaluation, bidder submittals, subcontractor oversight, and maintenance of procurement documentation. The assessment resulted in five findings and two observations.
- QA&S-2008-005, dated January 29, 2009, *Work Processes, Special Processes, and HASQARD Implementation*. This assessment focus was on the sampling and analysis plans for the 100-N Ancillary Facilities Waste Characterization and the Remedial Investigation Work Plan for the Hanford Site Releases to the Columbia River. The assessment resulted in five findings.
- QA&S-2009-001, dated March 27, 2009, *Inspection and Acceptance Testing*. The objective of the assessment was to ensure the design, performance, and quality requirements were met to ensure structures, systems, and components procured for use by WCH were acceptable. The projects/activities assessed were: construction of ERDF cells 7 & 8 including the acceptance test plan for leachate pump system, receipt inspection processes at the WCH warehouse and Del Hur Industries (ERDF Cells 7&8 subcontractor), procurement requirements of waste operation trucks, found fuel containers, and D4 procurement. The assessment resulted in three findings.

WCH Surveillance: S-09-AMSE-WCH-QA-001

The assessment reports were determined to be complete and the corrective actions were properly entered into the contractor corrective action system.

No issues found.

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

Interviews

Interviews with the WCH QA Manager and assessors indicate they possess a working knowledge and understanding of the WCH QA program assessment requirements.

No issues found.

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

Contractor Self-Assessment

This section was not evaluated under the scope of this surveillance.

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

Management Briefing:

June 30, 2009:

- Harold M. (Mike) Hassell, WCH QA Manager
- Kevin Christensen, WCH QA Assessor



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

OCT 01 2009

09-SED-0174

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 – SURVEILLANCE OF CRITICALITY SAFETY
MANAGEMENT ASSESSMENT PROCESS (S-09-SED-PRC-023)

The purpose of this letter is to transmit RL Surveillance Report S-09-SED-PRC-023,
“Criticality Safety Management Assessment Process”. The report documents one finding and
one observation, both requiring 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,


Jan Osso
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 & Engineering Division (SED)

Surveillant: Tom Nirider

Surveillance Number: S-09-SED-PRC-023

Date Completed: September 14, 2009

Contractor: CH2M HILL, Plateau Remediation Company (CHPRC)

Facility: Crosscutting

Title: Criticality Safety Management Assessment Process

Guide: N/A

Surveillance Scope:

Historically Fluor Hanford, Inc. (FHI), the previous contractor managing the significant fissionable material facilities on the Hanford site, conducted an annual assessment activity designed to assess the implementation of controls and general health of the criticality safety programs in the various facilities under its purview. The facilities were as diverse as the Waste Burial Grounds, Waste Receiving and Packaging Facility (WRAP), the Plutonium Finishing Plant (PFP), and the K-Basins operations. Each facility has a unique set of problems in criticality safety and its own separate staff who manage the program. An overarching process, defined within HNF-7098 "Criticality Safety", describes the site criticality safety program structure and provides guidance for compliance with the applicable ANSI/ANS Standards requirements and DOE Order 420.1B. The assessment has in the past, been conducted by utilizing the DOE-STD-1158 Review criteria as a guide and for specific lines of inquiry. Individuals with criticality safety expertise and specific qualifications (Criticality Safety Representatives, Criticality Safety Engineers) conducted the assessment. Assessors were borrowed from each facility and a separate independent team was assigned to review each facility. A summary report containing findings, observations, and recommendations was produced. The results were reviewed with the Senior Management Team responsible for criticality and nuclear safety, and this team took responsibility for oversight of closure of any significant issues. Occasionally, criticality non-conformances were discovered during this process.

This fiscal year, CHPRC is initiating some changes to the Annual Assessment process, and in the meantime is proposing an assessment activity designed to measure the adequacy of program implementation and to assess the Criticality Safety Management Program (SMP) Key Attributes with specific lines of inquiry. Because of these changes, CHPRC did not begin the assessment until mid-June, and they issued a final report September 2009. This surveillance was planned to review the activity, the recent changes, and whether specific requirements are being met.

The surveillance criteria were developed from the CHPRC review plan and were also drawn from DOE-STD-1158. A portion of the CHPRC Management Assessment and a portion of this Surveillance included the results of a recent Defense Nuclear Facilities Safety Board (DNFSB) report and its applicability to CHPRC operations. This DNFSB report summarized a review of criticality safety evaluations at the Y12 plant which revealed problems with implementation of requirements from DOE Order 420.1B and DOE-STD-3007-2007.

Surveillance Summary:

General Observations:

The reorganization since the CHPRC contract was awarded has resulted in a reassignment of responsibility for criticality safety implementation to the criticality safety program. The central criticality safety organization located in Stevens Center manages the overall program as implemented at the facilities. Previously, the implementation responsibility was managed by the nuclear safety group. Criticality safety had responsibility for assessments.

ANSI/ANS-8.19 requires that management monitor the criticality safety program typically through audits and assessments. CHPRC is following this requirement in this management assessment. Previously, the DOE-STD-1158 assessment guidelines were utilized verbatim. The contractor reviewed each of the areas in the Standard over a three-year period. This Management Assessment utilized questions from the Standard, but only those deemed relevant to the implementation issues they are presently exploring. This is an acceptable practice particularly in light of the new organizations created since the contract change. The assessment format enables the contractor to measure the quality of their program implementation in a meaningful way by carefully selecting the review criteria.

The Management Assessment was well-organized with defined lines of inquiry. Assessment of compliance to the Key Attributes combined with a review of operating procedures and criticality process evaluations is a best practice.

Assessment Process:

The Management Assessment focused on the details of program implementation. The assessment criteria are designed to measure the quality of implementation through 1) Operating Procedures, 2) Process Evaluations (Criticality Safety Evaluation Reports or CSERs), and 3) the Key Attributes which include;

- a) "Operations are conducted such that at least two unlikely, independent, and concurrent changes (contingencies) in processing and/or operating conditions must occur before a criticality accident is possible."
- b) "Handling of fissionable material under normal and credible abnormal conditions is evaluated in criticality safety evaluation reports (CSERs). These evaluations also determine the limits, controls, and engineered features necessary to ensure that an acceptable margin of sub-criticality is maintained."
- c) "A criticality prevention specification (CPS) is developed based on the results and conclusions from the CSER(s) or other safety basis documents. A CPS provides rules for the safe handling of fissionable material and appropriate criticality safety postings."

A series of field inspections additionally focused upon the flow-down of requirements (limits and controls) from the CSERs and Adequacy of CSER Forms (ACFs) to the Criticality Prevention Specifications and operating procedures. This alone is a daunting task even for a single facility, given the sheer number of criticality safety evaluations. Much of this work belongs to the facilities and their internal programs. Field inspections also addressed compliance with the requirements specified in DOE-STD-3007-2007 for preparation of criticality safety evaluations.

DNFSB concern regarding Criticality Safety Evaluations at Y12:

A portion of the CHPRC Management Assessment and a portion of this Surveillance included the results of a recent DNFSB report and its applicability to CHPRC operations. This DNFSB report summarized a review of criticality safety evaluations at the Y12 plant which revealed problems with implementation of requirements from DOE Order 420.1B and DOE-STD-3007-2007. Y12 evaluations failed to comply with requirements in the ANSI/ANS Standards, DOE 420.1B, and site program procedures. Specifically, two issues were identified; (1) all identified credible abnormal events were not analyzed to demonstrate subcriticality, and (2) events deemed unlikely to occur do not meet the definition of "unlikely" provided in site procedures. The issue at Y12 was that several contingencies classified as unlikely in the NCS evaluations at Y12 were actually anticipated events, i.e.; administrative spacing limits that had been violated several times at the site. The DNFSB comment was that these contingencies (spacing violations) should have been analyzed as normal anticipated conditions.

The RL Criticality Safety Subject Matter Expert (SME) identified that the second area, incorrect use of the term unlikely, may have implications for PRC criticality evaluations. The SME felt that similar circumstances may exist within the historical evaluations supporting PRC operations. Subsequently, the PRC was asked to embark upon a review of these evaluations and prepare a report to be submitted to RL describing the results.

During the RL directed review, it was discovered that in 2004, there was a nonconformance at PFP with the fissile mass control in CSER 00-006 (a single item was discovered with a mass of 236 grams Pu). Examination of CSER 00-006 indicated that the author believed a fissile mass upset could not occur due to the nature of the operation and thus an anticipated fissile mass upset greater than 200 grams Pu was not included in the analysis. As this criticality safety evaluation was still in use, PFP temporarily suspended operating procedure ZO-160-080, Pipe-n-Go Operation, while CSER 00-006 was revised.

The key issue was that CSER 00-006 explicitly stated that a fissile mass upset could not occur due to the nature of the process, and therefore, a contingency mass was not included in the base case.

CHPRC has been encouraged to report this event through the Criticality Safety Non-conformance Process. However, as of this date, a nonconformance report has not been generated.

Active CSERs at the W&FMP and PFP were reviewed as to the treatment of anticipated conditions. Non-conformances for the last five years at the W&FMP and PFP were reviewed with the relevant, active CSERs. The conclusion of the review was;

“...that the facilities and Projects under the auspices of the CHPRC Criticality Safety Program understand the intent of an unlikely event and take appropriate actions when it appears that criticality safety evaluations do not adequately address potential upset conditions.”

CHPRC did ensure through this review that the lessons learned from non-conformance events were adequately addressed in criticality evaluations (unlikely and anticipated events). CHPRC has been encouraged to embed this process in the HNF-7098 “Criticality Safety” procedure to ensure future compliance.

At a meeting with the Executive Safety Review Board (ESRB) in January, 2009 the status of the Criticality Safety Program was discussed. At that time, it was determined that the ESRB would serve the same role the prior “Senior Criticality Safety Committee” had under Fluor Hanford. The CHPRC President has accepted that role which includes limited oversight of the Management Assessment process.

Subsequently, CHPRC changed the Criticality Safety Program (HNF-7098, Rev. 18, Section 1.3.7) to recognize the ESRB as the responsible senior safety oversight

committee. The criticality safety staff will meet with the ESRB after the report is prepared and released to discuss the results from the assessment.

Project Specific Activities:

Plutonium Finishing Plant

All forty-seven of PFP's CPS documents are now on the PFP Closure Project web site, under the sub-folders "documents", then under "Technical Bases", then under "criticality safety specifications". The active ACFs are directly referenced by section 5 of the PFP CPS documents. Electronic word files of these ACFs are not generally available except to those with read-write access to the CriticalSP share drive. The CPS documents are treated as "operational procedures with criticality safety implications", and are directly referenced by various work control documents.

PFP Nondestructive Assay Program

On 07/07/09 as part of a criticality safety walkthrough, NDA practices at the PFP were observed for measurement of waste packages being sealed out of the PRF 1st Floor West Gloveboxes. NDA Technicians had a detector in a fixed location inside the ARA. Operators would seal out a package, place it on a fixed stand next to the detector, at which time the NDA Technicians would make a measurement from their remote location. Communications was achieved via radio. The package would be measured on two sides, a preliminary gram quantity would be assigned, added to the drum inventory sheet, and the package would be added to the drum. The NDA Technicians described that they have had high accuracy when the final NDA numbers were compared to the values obtained in this manner. This activity was well executed and implemented, and represents a best practice.

PFP Walkthrough Tour

On 07/07/09 the surveillant conducted a walkthrough tour of the exterior of the 234-5Z facility with the CSRs/CSE and with the CHPRC criticality safety engineer who was conducting an assessment as part of their management assessment process. The walkthrough was designed to familiarize the CHPRC criticality safety engineer with the facility operations and Decommissioning & Demolition (D&D) plans. Outside fissile material storage was inspected, the underground vault in 241Z-361, facility waste drum storage, waste box storage, criticality safety postings, and general site condition were observed. No issues were identified.

The SME toured the 234-5Z back-side operating rooms and examined in detail the D&D processes being conducted in the Analytical Laboratories area. We covered the area well, discussed D&D plans, and observed locations where hoods and gloveboxes have been dispositioned. The SME also toured the RMC line and discussed with the criticality staff the plans for D&D of the large gloveboxes located there. Many have been cleaned of

equipment and have had decontamination solutions applied in preparation for removal. The former Magnesium Hydroxide gloveboxes are ready for removal.

Last, a tour was conducted of the Plutonium Reclamation Facility first floor east gloveboxes and first floor canyon. While there, the SME observed seal-out work being conducted in the PRF 1st floor west gallery glovebox. Criticality Safety postings were observed and controls were discussed with the criticality safety staff. Again, no discrepancies were observed.

The 242-Z facility still contains a large volume of combustible materials accumulated on the floor. This has been noted numerous times. This represents a fire and safety issue and should be dealt with as soon as practicable during D&D activities.

Walkthrough Tour of Waste Operations at WRAP, Central Waste Complex and Waste Burial Grounds in 200 West:

A walkthrough tour of WRAP facility operations was conducted with the Criticality Engineer responsible for the facility CSERs. The WRAP mission is dramatically reduced from what it was in the recent past. There are no WIPP shipments occurring. The facility was conducting NDA measurements of high mass "Type D" drums with a view to re-categorizing them as "Type A" drums. WRAP fully expects the vast majority of the "Type D" drums to be relabeled as "Type A's". This will simplify their storage and handling. There are several hundred of these drums but they are working through the list. The "Type D's" are categorized this way due to the inherent uncertainty in previous NDA measurements. The new measurements are more refined and so will allow assignment of a better mass value.

WRAP is also conducting repackaging operations on suspect TRU drums in their glovebox line. These operations will continue until the WIPP shipments restart sometime in the future. A new revision to the CSER-05-018 has been released, and the waste facilities are working through an IVR process and subsequent implementation of the new limits and controls. This directly impacts the WRAP facility. The SME will follow the IVR and implementation process separately. No discrepancies were noted.

Next, the SME conducted a walkthrough tour of the CWC Buildings 2403WB, 2403WC, and 2403WC where the surveillant observed drum array storage, labeling and criticality safety limits and controls. No discrepancies were observed. Of interest were the several arrays containing "Type D" drums and "Type E" drums. These are typically higher mass drums that are required to be stored under special circumstances. The "Type D" drums are stored on single pallet arrays of up to 4 drums per pallet. The "Type E" drums are stored singly. The single arrays of "Type E" drums utilize an engineered aluminum spacer bar placed on the floor which provides the required 36-inches of spacing. This is a good practice and was well implemented in the CWC. There is a bewildering array of packages and configurations stored at CWC, but they seem to be well managed. The CSR is familiar with the storage configurations, and was able to answer questions readily.

The surveillant observed waste drum retrieval operations from the 218W4B Waste Burial Grounds, Trench TV-7. The drums were stored between concrete walls in a semi-vertical orientation. The burial grounds were then backfilled with dirt, covered and backfilled with gravel and soil. The drums were placed in 1973 and were generated at the PFP. The drums retrieved and those exposed in the trench were in remarkably good condition. Drums were lifted from their emplacement and overpacked then brought out of the area. No discrepancies were observed.

K-Basins

The following is a summary of a criticality nonconformance declared at the K-Basins related to the dimensional differences discovered in the settler tubes. This event occurred during the conduct of the Surveillance and is included here for completeness. An occurrence report, and a PISA/USQ resulted. These have been dispositioned satisfactorily. There were no specific discrepancies observed with regard to K-Basins operations.

During a hazards analysis for proposed Integrated Water Treatment System inspections, it was pointed out that the settler tube maximum length (192 inches), maximum inside diameter (19.79 inches), and minimum wall thickness (0.23 inches) were all Safety Class for criticality safety. Some research was conducted to determine whether or not it could be proved the minimum wall thickness could be met. The research determined that the settler tubes were fabricated from 20" Schedule 10S pipe rather than Schedule 10; the minimum wall thickness for Schedule 10S pipe is 0.218 inches and therefore the tubes do not meet the requirement. Additional research determined that the maximum inside diameter of the settler tubes also exceeded specifications (19.86 inches).

The surveillance identified one finding and one observation as shown below.

Surveillance Results:

Finding: S-09-SED-PRC-023-F01

CHPRC has not reported through the Criticality Safety Non-conformance Process an event (CSER deficiency) discovered during an RL-directed review that was significant enough to warrant a stop work by suspending the operating procedure.

Requirements:

ANSI/ANS-8.19, "Administrative Practices for Nuclear Criticality Safety", Section 7.7 states, "Deviations from procedures and unforeseen alterations in process conditions that

affect nuclear criticality safety shall be reported to management, investigated promptly, corrected as appropriate, and documented. Action shall be taken to prevent a recurrence.”

HNF-7098, Chapter 9 states in part, “Facilities willvigorously pursue identification and reporting of all nonconformances.”

FSP-PFP-5-8, Rev. 22, Chg. 6, Section 5.15 “Criticality Safety Nonconformance “ states in part;

“5.15.1 If a known or suspected criticality safety nonconformance occurs, take the following actions

“The CSR or designee shall complete the Potential Criticality Nonconformance Response Checklist (PCNRC), (available as Hanford Site Form A-6004-087) to determine the severity of the nonconformance or justify why the situation does not constitute a nonconformance. “

Discussion:

During the RL-directed review described above, it was discovered in May 2009, that in 2004, there was a non-conformance at PFP with the fissile mass control in CSER 00-006 (a single item was discovered with a mass of 236grams Pu). Examination of CSER 00-006 indicated that the author believed a fissile mass upset could not occur due to the nature of the operation and thus an anticipated fissile mass upset greater than 200 grams Pu was not included in the original analysis.

At the time of discovery, as this criticality safety evaluation was still in use, PFP stopped work and temporarily suspended the associated operating procedure; ZO-160-080, Pipe-n-Go Operation, while CSER 00-006 was revised to correct the deficient analysis. CSER 00-006 explicitly stated that a fissile mass upset could not occur due to the nature of the process and therefore, a contingency mass was not included in the base case.

Although a revision to the CSER has subsequently remedied the deficiency in the contingency analysis, as described above, a report of the nonconforming condition was not prepared as required by ANSI/ANS-8.19, “Administrative Practices for Nuclear Criticality Safety”, HNF-7098, “Criticality Safety”, Chapter 9, and FSP-PFP-5-8, Section 3.3, “Criticality Safety”.

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

Observation: S-09-SED-PRC-023-O01

CHPRC should ensure through a programmatic requirement that the lessons learned from non-conformance events involving the occurrence of unlikely and anticipated events identified within the CSERs, are adequately addressed through revisions to those CSERs.

Discussion:

A recent report from the DNFSB summarizing a review of criticality safety evaluations at the Y12 plant revealed problems with implementation of requirements from DOE Order 420.1B and DOE-STD-3007-2007. Y12 evaluations failed to comply with requirements in the ANSI/ANS Standards, DOE 420.1B, and site program procedures. Specifically, two issues were identified; (1) all identified credible abnormal events were not analyzed to demonstrate sub-criticality, and (2) events deemed unlikely to occur do not meet the definition of "unlikely" provided in site procedures.

The RL Criticality Safety SME identified that the second area, incorrect use of the term unlikely, may have implications for PRC criticality evaluations. The SME felt that similar circumstances may exist within the historical evaluations supporting PRC operations. Subsequently, the PRC was asked to embark upon a review of these evaluations.

During the RL-directed review, it was discovered that in 2004 there was a non-conformance at PFP with the fissile mass control in CSER 00-006 (a single item was discovered with a mass of 236grams Pu). Examination of CSER 00-006 indicated that the author believed a fissile mass upset could not occur due to the nature of the operation and thus an anticipated fissile mass upset greater than 200 grams Pu was not included in the analysis. As this criticality safety evaluation was still in use, PFP temporarily suspended operating procedure ZO-160-080, Pipe-n-Go Operation, while CSER 00-006 was revised.

A revision to the CSER has subsequently remedied the deficiency; however, RL believes that a specific requirement should be imposed to ensure future deficiencies are corrected as necessary.

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

Good Practice:

This Management Assessment utilized lines of inquiry derived from DOE-STD-1158, but only those deemed relevant to the implementation issues being explored. This is a good practice particularly in light of the new organizations created since the contract change. The assessment format enables the contractor to measure the quality of their program implementation in a meaningful way by carefully selecting the review criteria.

The Management Assessment was well-organized with defined lines of inquiry. Assessment of compliance to the Key Attributes combined with a review of operating procedures and criticality process evaluations is a best practice.

Contractor Self-Assessment:

The subject of this surveillance was the CHPRC self-assessment process. The conclusion is that the Criticality Safety Management Assessment was conducted in accordance with requirements and was adequately conducted.

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

Management Debriefed:

Ray Puigh, CHPRC
Carol Cise CHPRC



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

09-OOD-0049

MAY 05 2009

Mr. C. G. Spencer, President
Washington Closure Hanford LLC
2620 Fermi Avenue
Richland, Washington 99354

Dear Mr. Spencer:

**CONTRACT NO. DE-AC06-05RL14655 – SURVEILLANCE REPORT S-09-OOD-RCP-002,
DOCUMENTED SAFETY ANALYSIS (DSA) AND TECHNICAL SAFETY REQUIREMENT
(TSR) IMPLEMENTATION REVIEW**

WCH DSA and TSR implementation was assessed during the month of March 2009. The review concludes that implementations of the DSA, TSRs and other authorization basis requirements are adequately implemented by WCH. While several issues and improvement opportunities (3 Findings and 5 Observations) have been identified, the identification of nuclear safety controls appear adequate. You are requested to process the attached report through the WCH corrective action management process.

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 Ray J. Corey, Assistant Management Safety and Environment, at (509) 376-0108.

Sincerely,

A handwritten signature in black ink that reads "Andrew H. Wirkkala".

Andrew H. Wirkkala
Contracting Officer

OOD:BAB

Attachment

cc w/attach:

S. L. Feaster, WCH
T. A. Harris, WCH
D. H. Houston, WCH
D. L. Plung, WCH
R. J. Skwarek, WCH

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

Division: Operations Oversight Division (OOD)

Surveillant(s): Mark Jackson, Deanna McCranie, Joe Waring, Allison Wright

Surveillance Number: S-09-OOD-RCP-002

Date Completed: March 27, 2009

Contractor: Washington Closure Hanford LLC (WCH)

Facilities: All

Title: Documented Safety Analysis (DSA) and Technical Safety Requirement (TSR) Implementation Review

Guide: Lines of Inquiry Established in Core Surveillance Guide NSS 18.05

Surveillance Scope:

The objective of this surveillance was to verify that contractors are adequately implementing DSAs and TSRs at RCP facilities and work activities.

Surveillance Summary:

Various aspects of the WCH nuclear safety program implementation and verification were assessed. These include:

- Reviewed authorization basis implementation and compliance documents for field remediation projects 100D, 100H and 618-1; Environmental Restoration Disposal Facility (ERDF); 107-N, 105/109N; 324; and 327.
- Interviewed 300 Area Nuclear Safety Program Manager, D4 Quality Engineer (QA) Engineer, 324 Facility Manager, 324/327 Systems Engineer, 100D Resident Engineer, 100N Engineering Lead, Nuclear Safety Manager, ERDF Resident Engineer, Waste Management Officer/Deputy Waste Management Officer, Waste Services Manager, Waste Management Information System (WMIS) Administrator, WMIS QA SME, Stoller Site Superintendent, Stoller Operations Manager.

- Observed the update of paperwork and movement of a waste box into an Inventory Control Area (ICA).
- Observed demonstration of WMIS for data entry, waste profiles, and sum of the fraction.
- Performed Walkthrough of the ICAs, including verification of inventory in ICA 08-C6-008 and 09-05-03, and 327.
- Reviewed WCH management self-assessments associated with nuclear safety.
- Reviewed WCH FY 2009 Self-Assessment and Surveillance schedules and reports conducted by WCH management.

The following findings and observations resulted:

- **S-09-OOD-RCP-002-F01** - The Condition of Approval in SER 08-SED-0158, Approval of Final Hazard Categorization (FHC) for Remediation of the 118-D-1, 118-D-2, 118-D-3, 118-H-1, 118-H-2, and 118-H-3 Solid Waste Burial Grounds, was not included in the 100D Authorization Basis (AB) flowdown matrix.
- **S-09-OOD-RCP-002-F02** - The total In-Cell Inventory Attachment 1 for C-Cell, D-cell and Shielded Material Facility (SMF) airlock was inaccurately documented.
- **S-09-OOD-RCP-002-F03** - Some implementing procedures and work packages are not formatted in accordance with PAS-1-1.1, Technical Procedure Development and Implementation, and PAS-2-1.1, Integrated Work Control, respectively.
- **S-09-OOD-RCP-002-O01** - Completion of the System Engineer Qualification card was not documented accurately.
- **S-09-OOD-RCP-002-O02** - QA Checks are not required for data input into WMIS for approved Waste Profiles.
- **S-09-OOD-RCP-002-O03** - Some ERDF ICA Boundaries are poorly marked.
- **S-09-OOD-RCP-002-O04** - WMIS Data for Quantities Received/Disposed at ERDF did not match data in Calculation 0600X-CA-N0031 completed December 11, 2008.
- **S-09-OOD-RCP-002-O05** - Incomplete flowdown of requirements indicates a lack of careful development and control of changes to compliance matrices and implementing procedures.

During the conduct of the review, it was evident that the personnel interviewed were knowledgeable, and the selected implementing procedures were adequate. At ERDF, an improvement was noted in scheduling and conducting surveillances and self-assessments on the implementation of the FHCs, and completing FHC evaluations.

The review concludes that implementations of the DSA, TSRs and other authorization basis requirements are adequately implemented by WCH. While several issues and improvement opportunities have been identified, the identification and implementation of nuclear safety controls appear adequate.

Surveillance Results:

Finding: S-09-OOD-RCP-002-F01

The Condition of Approval in SER 08-SED-0158, Approval of Final Hazard Categorization (FHC) for Remediation of the 118-D-1, 118-D-2, 118-D-3, 118-H-1, 118-H-2, and 118-H-3 Solid Waste Burial Grounds, was not included in the 100D Authorization Basis (AB) flowdown matrix. (OA 22409)

Requirement:

NS-1-2.1, Rev 2 Step 6.1.1 states in part, "The PE [Project Engineer] (or designee) will develop a listing of the safety analysis requirements (e.g., commitments, limits, controls), as extracted from the FHC document, FHC evaluations, and the SER, and ensure documentation of these requirements by using a matrix similar to the one shown in Attachment 3. The matrix will also document which work implementing instructions contain the requirements."

Discussion:

The Condition of Approval "The inventory stored in shipping containers shall be included in the allowable 255 inches of exposed fuel pending specific approval by DOE" was not included in the 100D AB flowdown matrix. The FR discussed this with the 100D resident engineer, who stated it was implemented through work package FRD 06 11 16 011. Discussions with the WCH Nuclear Safety Manager indicated that SER Conditions of Approval are expected to be included in the AB flowdown matrix.

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

Finding: S-09-OOD-RCP-002-F02

The total In-Cell Inventory Attachment 1 for C-Cell, D-cell and Shielded Material Facility (SMF) airlock was inaccurately documented. (OA 22199)

Requirements:

D4-200-3I-SOP-G-22, Hot Cell Combustible Material Inventory Section 6.8 Monthly Verification of Inventory.

WCH-1412, Building Technical Safety Requirements, 5.4 Fire Protection.

Discussion:

A review of Attachment 1 for cells C, D and SMF airlock identified that material had been added to the cells, and the inventory updated on the running inventory sheet in Attachment 1 to the procedure. However, when that page of the inventory was completely filled in, a new inventory page was added to the surveillance package. For all three of these cells, when the new sheet was generated, the previous pages initial inventory was used rather than the actual combustible inventory. This resulted in an inaccurate documentation of the total combustible inventory. In none of the situations was the inventory significantly more than the documented quantity; however, several

monthly inventories were performed with supervisory and Fire Protection Engineer reviews without identifying the errors. During the interview with the supervisor, he recognized that the 5 ton crane had been added to D-cell with the inventory updated, but the crane was not removed from the inventory when it was later moved into the airlock. This was not identified until questions arose during this surveillance.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-002-F03

Some implementing procedures and work packages are not formatted in accordance with PAS-1-1.1, Technical Procedure Development and Implementation, and PAS-2-1.1, Integrated Work Control, respectively. (OA 22408)

Requirements:

PAS-1-1.1, Section 6.2.5 states, "Use the convention of placing a flag in the left margin and referencing the specific Authorization Basis requirement at the end of the step that implements the TSR/DSA/FHC (the following is an example). (Ref. 324 TSR LCO 3.1.1)

PAS-2-1.1, Attachment 1, Step 3.5.8 states, "In cases where an authorization basis requirement (TSR, ASA, LCO, etc.) must be incorporated into the task instructions, it shall be flagged with the appropriate control marking in the left margin adjacent to the text.

PAS-1-1.1, Section 6.2.6 Placement of Notes, Cautions and Warnings, c. Notes, cautions, and warnings will not contain actions for the procedure user.

Discussion:

Contrary to the requirements in the PAS procedures on formatting technical procedures and work packages, the reviewers found actions included in Notes, and specific AB requirements not listed at the end of steps. Examples include:

WO-100-2.1, Revision 2, page 6, Under AB Commitment Four, the first bullet is followed by a Note that identifies a required action for the Resident Engineer if they determine the waste may exceed the limits for U-233, U-235, or Pu-239.

Stoller Procedure 5-65, Step 5.3.3, Note: Waste packages and/or containers shall be packaged in an Inventory Control Area in a planar array and can be stacked no more than two high. This note contains an action.

PAS-1-1.1, Section 6.2.5 is not implemented in the ERDF implementing procedures.

PAS-2-1.1, Attachment 1, Step 3.5.8 is not implemented at 100-D.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-002-001

Completion of the System Engineer Qualification card was not documented accurately. (OA 22392)

Discussion:

The two system engineers for 324/327 completed all the signatures in their qualification cards on the same day, each qualification card signed off by the other qualifying system engineer. As the documentation was lacking evidence of the qualification process used, the FR discussed the process used to complete the qualification cards with one of the system engineers. He reported that an oral board was conducted to allow the qualifying engineers to present their level of knowledge to two other non-qualifying engineers and their supervisor. Following the oral board, the qualifying engineers signed each others qualification card as they were the people most knowledgeable of the systems. Their supervisor then signed for completion of the qualification card. The oral exam process was confirmed by one of the non-qualifying engineers. While the oral exam may have been sufficient to confirm an adequate level of knowledge of the qualifying system engineers, the process was not accurately documented on the qualification card and could lead to misinterpretation of the qualification process performed.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-002-002

QA Checks are not required for data input into WMIS for approved Waste Profiles. (OA 22408)

Discussion:

During discussion with WCH staff relative to inputting data to WMIS database, the process for input and QA was covered. It was stated that there is no requirement for a second check on the input values. This provides opportunity for a single point failure. Per DOE O 414.1C, QA, Attachment 2, Section 3.c.1, the contractor is required to establish and implement processes to detect and prevent quality problems. The reviewer did not find a requirement for a QA check on the input data from waste profiles, either during data entry or immediately following entry prior to shipping. This data is used to generate the quantity disposed and quantities in the inventory control areas which ultimately ensure ERDF will remain less than Hazard Category 3.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-002-003

Some ERDF ICA Boundaries are poorly marked. (OA 22408)

Discussion:

A map depicting the locations of the ICAs is kept and updated by Stoller. Each ICA is marked by posting a sign on one of the corners. For ICAs which are adjacent to other waste or have radiological postings and ropes adjacent to the boundary, it is difficult to determine the ICA boundary in the field. Specific examples include: 08-C6-08, 08-C6-06, and 08-C6-07.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-002-004

WMIS Data for Quantities Received/Disposed at ERDF did not match data in Calculation 0600X-CA-N0031 completed December 11, 2008. (OA 22408)

Discussion:

Calculation 0600X-CA-N0031 is completed to demonstrate compliance with WCH-174 Commitment 1. A spot check of data used in the calculation was reviewed by having the inventory report printed in WMIS. The data currently listed in WMIS did not match what was used in the calculation. It is noted that inventory received would still be far below the commitment requirement. Additionally, an error was found in the Monthly Tracking Spreadsheet. The grams listed for WCH-174 Table 2-7 should be updated to include the correct number in the document. This error does not affect the calculations.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-002-005

Incomplete flowdown of requirements indicates a lack of careful development and control of changes to compliance matrices and implementing procedures. (OA 22349)

Discussion:

The FHC, WCH-137, includes Section 5.1, Special Controls, and Section 5.2, Project-Specific Controls. In general the requirements from both of these sections were flowed down into the compliance matrix and into implementing procedures. However, there were specific issues identified that are discussed in more detail below.

Section 5.1 contains a requirement related to placing discrete items from a segment in a storage area away from other work activities. There is an allowance to stabilize the item by placing it in a covered nonflammable storage container. This allowance was not contained in the compliance matrix and was not specifically found in an implementing procedure. The allowance is embodied in FR3 08 09 25 063, section 5.2.1. The flow-down requirements matrix needs to be updated.

The compliance matrix item AB 31 for Section 5.1 references sections 2.41 and 5.16 of an implementing procedure, FR3 08 09 25 063. Section 2.41 refers to Attachment D; however, there is no Attachment D. The appropriate information is contained in Attachment 3, and the reference in Section 2.41 should be corrected. Also, the reference to section 5.16 in the compliance matrix should be corrected to 5.1.6.

The compliance matrix item AB 21 for Section 5.2 refers to sections 5.9 and 6.1 of WMT-1-4 for periodic inspection of vent relief valves. Those sections discuss inspections, but do not specifically call out vent relief valves.

The compliance matrix item AB 26 for Section 5.2 refers to FR3-07-10-25-040 for separation of roadways from active remediation areas and staging areas. That implementing document does not specifically cover this requirement. The traffic control plan, drawing 0300X-DD-C0485, shows this separation and needs to be incorporated into the requirements matrix.

Compliance matrix item AB 27 for Section 5.2 refers to SH-1-2.4 for storage of flammable materials and storage tanks away from active remediated areas. That implementing procedure generically discusses inspections, but not the specific limits in the compliance matrix. The project does not currently have fuel storage tanks. Incidental amounts of flammable chemicals (e.g., paint) are stored in the equipment laydown area, shown in the traffic control plan, drawing 0300X-DD-C0485 and this drawing needs to be incorporated into the requirements matrix, and SH-1-2.4 should specifically reflect the restriction.

Although remediation of the 618-1 burial ground is nearing completion, the above issues indicate a need for careful development and control of changes to compliance matrices and implementing procedures.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

A review of the WCH FY 2009 Engineering Services Self-Assessment and Surveillance Schedule; the WCH FY 2009 Safety, Health, and Quality Programs Self-Assessment and Surveillance Schedule; and WCH FY09 D4 Self-Assessment and Surveillance Schedule identify at least five nuclear safety/Safety Management Program (SMP) related assessments or surveillances scheduled each quarter. All scheduled assessments/surveillances for the first quarter for FY 2009 were completed. A review of the 324/327 Vital Safety Systems (VSS) assessment addressed all requirements related to the facility VSS. Several self-assessments of SMPs indicated sufficient breath of review.

Review of the WCH assessment program did not identify any areas concern.
Based on the review, the contractors' assessment program of the WCH self-assessment
was determined to be adequate.

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

Management Debriefed:

R. Skwarek, WCH

L. Curry, WCH



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

OCT 15 2009

09-SED-0192

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

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 - RL SURVEILLANCE OF WCH'S
IMPLEMENTATION OF APPROVED AUTHORIZED LIMITS AND 10 CFR 835,
EXEMPTION FOR HARD-TO-DETECT RADIONUCLIDES (S-09-SED-WCH-026)

The purpose of this letter is to forward the subject surveillance report. This surveillance was performed by RL from September 16-23, 2009, and identified two good practices and one observation which are documented in the attached report. 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,

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

Jewel J. Short
Contracting Officer

SED:WVG

Attachment

cc w/attach:
D. M. Boone, WCH
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: Wayne M. Glines

Surveillance Number: S-09-SED-WCH-026

Date Completed: September 16-23, 2009

Contractor: Washington Closure Hanford LLC (WCH)

Facility: N/A (Radiological Release Program)

Title: Implementation of Approved Authorized Limits and
10 CFR 835, Appendix D, Exemption for Hard-to-Detect Radionuclides

Guide: DOE Order 5400.5, Radiation Protection of the Public and the Environment;
10 CFR 835, Occupational Radiation Protection

Surveillance Scope:

The surveillance was performed to determine whether WCH has taken the necessary actions to correctly and adequately implement the approved Authorized Limits (AL) and 10 CFR 835, Appendix D, exemption for select hard-to-detect (HTD) radionuclides (RN) (C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155). It should be noted that WCH has adopted the term "exempt" beta-gamma emitting RN for the specific RN listed in these AL and exemption to avoid any confusion with the technical definition which WCH has previously adopted for HTD RN, e.g., Tc-99 is included in the AL and exemption, but is not technically considered a HTD RN. The term "exempt" RN will be used hereafter in this report for the specific RN in the AL and exemption. Specifically, the surveillance reviewed applicable WCH manuals, procedures, technical basis documents, survey technical assessments, and survey plans. Additionally, interviews were conducted with WCH radiological protection and technical support staff and management.

WCH Implementation of Approved AL and 10 CFR 835 Exemption

Surveillance Summary:

This surveillance included a review of WCH manuals and procedures potentially applicable to the AL and exemption for specific exempt RN. Applicable sections of WCH-57, *WCH Radiological Control Manual*, Rev. 3, June 2009, were reviewed, as well as, WCH-345, *Technical Basis for Radiological Control Contamination Survey Methods*, Rev. 1, June 2009. WCH-345 describes the WCH process for developing survey methods for the detection and measurement of radioactive surface contamination, both for purposes of compliance with 10 CFR 835 requirements for the control of radiological areas, and the radiological release of materials and equipment from DOE control (per DOE O 5400.5 requirements).

WCH Level 1 and 2 procedures in the following areas were also reviewed:

- ENV-1, *Environmental Monitoring & Management*
- RC-100, *Radiological Control Support Procedures*
- RC-200, *Radiological Control Field Procedures*

In addition to these manuals and procedures, over a dozen Survey Requirements Technical Assessments (SRTA) and Radiological Survey Plans (RSP) were reviewed for incorporation of the new AL and exemption values for the exempt RN. SRTAs are project-level documents used by WCH to provide RN of concern, sampling and survey requirements, and contamination control/release values to be used for a given project/work area. A RSP is generated when the survey methods and requirements in established procedures are inadequate or inappropriate for a specific work situation.

Training and briefing materials used for radiological engineers and radiological control technicians in preparation for implementation of the AL and exemption were also reviewed. In addition to the review of these manuals, procedures, technical documents, and training materials, interviews were also conducted with selected WCH management and staff responsible for developing and/or conducting the actions necessary for implementing the AL and exemption.

Based on the surveillance activities discussed above, two good practices and one observation were identified as discussed below.

Surveillance Results:

Observation:

S-06-SED-WCH-017-001: Several instances were noted regarding apparent editorial errors in technical documents, or inconsistency within a SRTA.

Discussion:

In general WCH has performed the necessary revisions to applicable documents and procedures for the AL and exemption. The documents and procedures reviewed provided adequate direction and/or guidance to implement the AL and exemption. No significant omissions or inaccuracies

WCH Implementation of Approved AL and 10 CFR 835 Exemption

were noted. Several instances were noted regarding apparent editorial error, or inconsistency within a SRTA:

- Table A-1 in WCH-345 is mislabeled as Table 0-1.
- ENV-1-2.31 references procedure ENV-1-2.32, *Preparation of Environmental Radiological Survey Task Instructions*, which has been cancelled (1/15/2007) and replaced by ENV-1-2.38.
- In TA-07-SR-07, Ni-63 is shown in the Attachment 1 derivation of composite efficiency, but is not included in the list of “Radionuclides of Concern”.
- In TA-09-SR-01, C-14 and Ni-63 are shown in the Attachment 1 derivation of composite efficiency, but are not included in the list of “Radionuclides of Concern”.

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

Good Practices:

- WCH performed extensive training and briefing of radiological engineers (RE) and radiological control technicians (RCT) prior to implementation of the AL and exemption. WCH also provided calculational tools (i.e., spreadsheets) to aid REs in incorporating the AL and exemption into applicable SRTAs and RSPs.

WCH prepared extensive briefing materials for REs, and all REs were given specific training in the implementation of the AL and exemption. The WCH Technical Authority developed calculational tools, prepared numerous examples on the use of these tools, and incorporated these tools and examples in the training/briefing provided to all REs. Interviews with REs indicated that the REs were very familiar with the AL and exemption, and relied on the calculational tools extensively in developing or revising SRTAs or RSPs.

WCH currently provides currently quarterly refresher training for all RCTs. Discussions on the AL and exemption, and potential impacts associated with their implementation were included in three refresher training cycles prior to implementation. All revised procedures were required reading for all RCTs and REs. Also, on the day the AL and exemption were implemented, the WCH Technical Authority visited as many WCH projects as possible to answer questions and verify there were no implementation issues.

- WCH established uniform, “default” beta-gamma composite efficiencies, e.g., 10% for GM and 100 cm² probes, for radiological instrumentation used for surface beta-gamma contamination.

Prior to implementation of the AL and exemption, specific composite efficiencies had been developed for each project or work area depending on the specific source term, (i.e., specific RN and ratios) present. Differing composite efficiencies would lead to differing radiological survey specifications (e.g., scan speed, static count times). These differing project-specific specifications, coupled with the mobility of RCTs moving from project to project, increased the potential of a RCT using incorrect radiological specifications. Also, the quality of data used to

WCH Implementation of Approved AL and 10 CFR 835 Exemption

develop the specific source terms varied, and the use of project-specific composite efficiencies based on these data provided little margin for error.

In implementing the AL and exemption, WCH does not directly detect or measure the exempt RN, but rather infers their levels from detection and measurement of easy-to-detect, “non-exempt” RN. The ratio of control levels of the exempt to non-exempt RN is 10:1. By establishing a default composite efficiency of 10% for 100 cm² and GM probes (most common types of field probe for surface contamination), WCH could control for both exempt and non-exempt using only the established control values for non-exempt RN. WCH conducted reviews of all existing SRTAs and RSPs to confirm that a 10% composite efficiency could be used for all projects. Only one project, 309 Moderator Tank, required a composite efficiency less than 10%. Accordingly, WCH adopted a default 10% efficiency for GM and 100 cm² probes for surface beta-gamma contamination. Similarly, a default composite efficiency was established for bench scalers used for surface beta-gamma contamination.

The REs interviewed indicated that this “standardization” of composite efficiencies was one of the most positive benefits of the implementation of the AL and exemption.

Contractor Self-Assessment:

To date, WCH has not conducted any self-assessments of its implementation of the AL and exemption.

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

Management Debriefed:

Kelly Neal, WCH
Gerald Simiele, WCH
Roy Patch, WCH



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

OCT 23 2009

10-OOD-0001

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 – WORK CONTROL CORE SURVEILLANCE OF
CHPRC FACILITIES AND PROJECTS**

A Work Control Core Surveillance was performed at the Waste and Fuels facilities, U-plant, and 212-N/P/R during September. The objective of this surveillance was to evaluate work control implementation with a focus on skill based work and associated hazards analysis and controls. In general, application of skill based criteria and work document type were found to be adequate. The surveillance resulted in the identification of 10 Findings and 6 Observations.

The findings identified at the Waste Receiving and Processing (WRAP) facility indicate a need for additional focus on skill based work package development and use during performance of work. The findings identified at U-plant are primarily associated with UO3 work planning for radiological and chemical hazard control. In accordance with SCRD 470.2b (Supplemented Rev. 2), CHPRC is requested to provide a corrective action plan to address the 10 Findings discussed in the attached Surveillance Report within 30 days of receipt of this letter. You are requested to process all of the Findings and Observations from the attached reports through the CHPRC corrective action management 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.

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,


Jan Osso

Contracting Officer

OOD:RMI

Attachment

cc w/attach:

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

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

Division: Operations Oversight Division (OOD)

Surveillants: Joe Demers, Joy Flack, Jack George, Paul Hapke, Mat Irwin, Brenda Pangborn, Ron Johnson, Craig Richins, Ben Wallace

Surveillance Number: S-09-00D-CHPRC-004

Date Completed: September 30, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: D4 and Waste and Fuels Management Projects (W&FMP)

Title: Work Planning and Control

Guide: Lines of Inquiry Established in Core Surveillance Guide 6.2.1, dated September 2009

Surveillance Scope:

The objectives of this surveillance were 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.

Surveillance Summary:

Beginning on Monday, September 14, the surveillance team observed performance of work in the field and reviewed work packages in accordance with the tailored surveillance guide. The facilities evaluated included the Central Waste Complex (CWC), Waste Receiving and Processing (WRAP), TRU retrieval and T plant (all part of the W&FMP), as well as U-plant and 212-N/P/R demolition (both part of the D4 project).

W&FMP surveillance team review of pre-job briefings, work release, work within controls, and work packages for CWC, TRU Retrieval, and T plant found them to be generally in compliance with applicable requirements. Application of skill based criteria and work document types were generally found to be adequate. WRAP work control implementation review identified multiple issues with work package content and use as

summarized in the issues below. It is recognized that recent personnel losses have impacted WRAP work control implementation; however, the nature of the issues indicate additional factors that warrant resolution. The significance and number of issues support a request for a corrective action plan for the WRAP issues to ensure causal factors are identified and resolved. In addition, some of the work management related issues identified in this surveillance have similarities to the observed recovery actions in August 2009 for removal of a damaged drum during handling in the drum tipper. Until challenged by RL, the facility intended to perform work without a Recovery plan or written work document. Five Findings and three Observations were identified during oversight of W&FM Project activities. The three observations are related to opportunities for improvement at the CHPRC work management level.

D4 oversight project team reviewed work package implementation and found general compliance with applicable requirements. Issues were observed related to scaffold erection and use at U-plant; however, those issues will be captured in a scaffold related reactive surveillance that was already in-progress. A low level airborne exposure occurred during work to remove a flange from a UO3 contaminated system. The lapel air sample for the worker had decayed below one DAC-hr. The project did not adequately investigate this precursor event. A second airborne radioactivity event occurred during drilling into the system. Investigation showed the project's airborne calculations used for work planning contained errors. Review of D4 work packages indicated a generally adequate level of detail with appropriate change control and scope implemented. Five Findings (F06, F07, F08, F09, F10) and three Observations (O04, O05, O06) were identified during oversight of D4 activities.

In total, ten findings and six observations were documented:

S-09-OOD-CHPRC-WRAP-004-F01: Hazard controls and work instructions inappropriately documented and approved.

S-09-OOD-CHPRC-WRAP-004-F02: Standing work documents not periodically evaluated per work management requirements.

S-09-OOD-CHPRC-WRAP-004-F03: Failure to notify Facility Representative (FR) following discovery of power during a safe to work check

S-09-OOD-CHPRC-WRAP-004-F04: Failed safe to work check causes not investigated and resolved.

S-09-OOD-CHPRC-WRAP-004-F05: During the process of performing the repair for the Neutron Assay vault (W1-09-00175) many activities were performed with-out sufficient information, direction, or associated steps.

S-09-OOD-CHPRC-D4-004-F06: Inadequate work hazard planning caused workers to receive a low level intake of airborne radioactivity during breach into a UO3 system; a prior occurrence of elevated airborne radioactivity on breaching the system did not result in an adequate review of the radiological work planning

S-09-OOD-CHPRC-D4-004-F07: Miscalculation and assumptions resulted in underestimated airborne radioactivity concentrations in the Technical Evaluation and Airborne estimates for 224 U/UA.

S-09-OOD-CHPRC-D4-004-F08: Technical Evaluation and Airborne estimates for 224 U/UA records do not provide sufficient detail for future reference and contain errors.

S-09-OOD-CHPRC-D4-004-F09: Chemical exposure to UO3 was not addressed in the Automated Job Hazard Analysis (AJHA); the contractor did not provide respiratory protection and/or evaluate employee's potential exposure to uranium during a pipe drilling operation.

S-09-OOD-CHPRC-D4-004-F10: Employees, exposed and/or potentially exposed to uranium dust during a pipe drilling operation were not provided adequate Personal Protective Equipment (PPE) to protect facial skin and eyes.

S-09-OOD-CHPRC-004-001: Failure to define Troubleshoot/Repair Package periodic evaluation requirements can inhibit clear documentation of work performed.

S-09-OOD-CHPRC-004-002: The Work Management Procedure has some inadequate areas of direction in its use when being applied to "Standing" Minor Work Tickets (MWTs).

S-09-OOD-CHPRC-004-003: The Work Control Process needs to address how individual hazard controls are addressed for Skill Based Work and Worksite Hazards Analysis (WHA).

S-09-OOD-CHPRC-D4-004-004: Insufficient Work Instruction Detail for controls used during breeching of UO3 system at U-plant.

S-09-OOD-CHPRC-D4-004-005: Recent increases in self-identified radiological work non-compliances may indicate a negative trend in radiological work practices.

S-09-OOD-CHPRC-D4-004-006: The format of the form used to estimate airborne concentrations provides an opportunity for Human Performance Improvement (HPI) type errors by allowing for an error likely situation.

Based upon the significance of the issues, a corrective action plan will be requested for the ten findings.

Surveillance Results:

Finding: S-09-OOD-CHPRC-WRAP-004-F01

**Hazard controls and work instructions inappropriately documented and approved.
[OA 26012]**

Requirement:

PRC-PRO-WKM-12115, Work Management, Rev. 0, Chg. 3, Section 3.2.3.19 states, "incorporate controls from the hazards analysis process into planned work instructions. All work shall be performed according to work instructions, not per the AJHA, RWP, or other hazards analysis tool."

Discussion:

A review of some WRAP ready to work and in progress work packages identified multiple instances of hazard controls and work instructions that are not found within the approved instructions, but are rather documented in the J-5 work record, statement to perform work per "engineering direction," or an informal email found within the work package folder with no corresponding message in the approved work instructions. Specific examples include the following:

1. W1-08-02430, 2404WB roof repair, August 11, 2008, J-5 entry states, "No-one under area of work or under southern end of building. Stay on structure as much as possible. Watch out for each other. Gloves/water/winds/rain = shutdown. Do not stand right next to each other per 250 lb load req. Two men at all times."
2. W1-07-3833, Troubleshoot and Repair HVAC equipment, August 21, 2008, J-5 entry states, "Tech will stay clear of 120 vac in upper rite corner of cabinet 113-C-202B." Package also contains a page in the folder that provides specific work instructions with signatures dated August 15, 2008, intended to support troubleshooting for the Zone II exhaust system. Finally, J-5 entries defining multiple troubleshooting paths to fix the equipment without use of a work change notice or adequately described in the release sheet.
3. W1-07-8123, Troubleshoot and Repair IPAN/GEA, May19, 2008, J-5 entry states, "Elect. Hazards for T/R 480V – 120V Cat 0 Hazard, long sleeve shirt/pants or coveralls remove metal from person. Leather gloves/safety glasses First establish areas of energy & work then proceed. Voltage rated tools & test equipment as needs for work."
4. W1-08-05135, Remove Ground-Fault Circuit Interrupter (GFCI) circuit from junction box, contains an email dated October 29, 2008, that provides specific discussion regarding the Ansul panel battery backup and the need to jumper in another set of batteries of the panel is de-energized for more than 48 hours.
5. W1-07-8123, Troubleshoot and Repair IPAN/GEA, work instruction allows "post maintenance per industry method or engineering direction."
6. W1-07-8125, Troubleshoot and Repair NDE X Ray Vaults contains extensive J-5 entries and even an entry on April 17, 2008, indicating that an AJHA was performed for high voltage cables and tube installation due to the required awkward rigging. Despite this entry, no AJHA was included in the work package and it appears that the work was still performed as a skill based activity.
7. Multiple packages contain shock hazard and arc flash analysis notes within the J-5 with no reference to the hazards analysis that establishes the controls.

The list above is not all-inclusive, but is representative of the variety of controls and work instructions observed in packages that are currently in use and ready to work at WRAP.

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

Finding: S-09-00D-CHPRC-WRAP-004-F02

Standing work documents not periodically evaluated per work management requirements. [OA 25855, 25997]

Requirement:

PRC-PRO-WKM-12115, Work Management, Rev. 0, Chg. 3, Section 3.3.1.2.e states, "Each "standing" work document must be periodically evaluated in order to force a fresh look at scope hazards and applicability. Planned work instructions for which an AJHA was not performed (skill based) are valid for up to three years."

Discussion:

Review of WRAP work packages that were ready to work identified at least two instances of work packages (W1-05-6935, Dry Pipe System Discrepancy) and (W1-05-2001, Install Corrected Equipment ID Labels) have exceeded the three year evaluation requirement without evidence of a review.

In the case of the Dry Pipe System Discrepancy work package, the package documentation has become convoluted and it is not clear how associated Quality Control hold points are aligned to the J-5 work record and associated instructions/notes. The age and size of this package will make it difficult to demonstrate configuration control and completed work. In addition, the portion of the package used to respond to the initial alarm condition appears to be more of an alarm response procedure than a work package and could benefit from a review against the work control criteria of the latest work management procedure.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-CHPRC-WRAP-004-F03

Failure to notify Facility Representative (FR) following discovery of power during a safe to work check. [OA 26012]

Requirement:

CRD M 231.1-2 (Supplemented Rev. 7), Section C, states, "A. Facility Management shall notify the Facility Representative (FR) for all events such that real time notification of DOE line management occurs for personnel injuries, personnel radioactive contamination or internal deposition, chemical exposures, work stoppages, and any other situation that might receive public, regulatory, or DOE Headquarters attention. In addition, the FR shall be notified on a 24-hour basis of events that reach a threshold to notify the Facility Manager, to include non-reportable and adverse conditions. If Facility Management is unable to contact the FR, then the On-Call FR shall be notified. Specific criteria for notification shall be, but are not limited to, the following ... 4. Whenever any of the following barriers associated with determining isolation conditions for hazardous energy fail...f. Safe to Work Check."

Discussion:

Review of the J-5 work record for work package W1-08-5135, Remove GFCI circuit breakers from junction box, identified an entry on November 3, 2008, that states "during safe to work check, 2 sources of power found. Work stopped PIC & controlling org and eng contacted. All parties verified system left safe ... need to identify unknown source of power." Discussion with the RL FR and review of the RL Operational Awareness database did not identify any information related to this event. Subsequent investigation by the facility determined that a MWT was used to determine the source of the second power source and a controlling organization lockout/tagout was used to complete the

work. Failure to notify the RL FR removed the opportunity for RL follow-up to this precursor event.

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

Finding: S-09-OOD-CHPRC-WRAP-004-F04

Failed safe to work check causes not investigated and resolved. [OA 26012]

Requirement:

CRD M 231.1-2 (Supplemented Rev. 7), Section C, B., states, "Hazardous Energy Control errors considered to be technical in nature shall be processed through an investigation, causal analysis, and corrective action process consistent with that specified for a Significance Category 3 Reportable Occurrence. A technical error is one that 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, the condition could result in hazardous energy being present, unidentified, in the work location."

Discussion:

Review of the J-5 work record for work package W1-08-5135, remove GFCI circuit breakers from junction box, identified an entry on November 3, 2008, that states, "during safe to work check, 2 sources of power found. Work stopped PIC & controlling org and eng contacted. All parties verified system left safe ... need to identify unknown source of power." Subsequent investigation by the facility determined that a MWT was used to determine the source of the second power source and a controlling organization lockout/tagout was used to complete the work. No evidence has been found that the issue was processed through the PRC corrective action management process in accordance with the applicable requirements. Thus, the causal factors that led to multiple power sources in a work area where a single power source was expected were not identified and resolved.

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

Finding: S-09-OOD-CHPRC-WRAP-004-F05

During the process of performing the repair for the Neutron Assay vault (W1-09-00175) many activities were performed with-out sufficient information, direction, or associated steps. [OA 25980]

Requirement:

PRC-PRO-WKM-12115, Work Management, Rev. 0, Chg. 3, pg(15),section 3.2.3-(5),block #7 states, the following: "Evaluate and discuss the precise scope of the work, including the methods of performing the work. Ensure that the planning team knows exactly what is to be included in the work instructions including consideration of scope

that is not to be included; the remainder of the planning activities hinge on clear and accurate understanding of the job scope."

PRC-PRO-WKM-12115, Work Management, Rev. 0, Chg. 3, pg (143), Appendix L, block(3) states, "For work instruction changes, only those disciplines affected by the change must review it; the Design Authority/Technical Authority determines who must review any changes:

- Reviewers of formal changes will be documented in Job Control System (JCS); and
- Reviewers of direct changes will be documented on the Work Record."

PRC-PRO-WKM-12115, Work Management, Rev. 0, Chg. 3, pg(60),Section 3.3.2-(7),block(8) and block(10)states, "Obtain Release Authority concurrence and document approvals on the work record. Approvals may be per telecom." "The FWS shall approve the change and agree that it resolves the issue before continuing work on steps to which the change applies."

Discussion:

The RL FR performed a review of work documents at WRAP. During the FR review of work documents the FR came across package (W1-09-00175) titles: "Repair or disengage Neutron Assay Vault carriage drive mechanism." During the process of performing the job many activities were performed without sufficient information, direction, or associated steps. Many activities that were documented in the work record were never covered by work steps in the work document.

Examples include:

1. August 4, 2009, Entry: "DA ... has approved Removal & Re-Welding of Screw Jacks under DrawBridge."
Inadequacy: This package has no steps that provide direction for removal or welding of Screw Jacks. This package provides no specifications for type of welding, size of welds, Welding Rod type etc.
2. August 4, 2009, Entry: "Removed Rail adjustures and took to LEF for welding."
Inadequacy: This package has no steps that provide direction for removal or welding of Rail adjusters. The Work Record does not have any Engineering Approvals or specifications for type of welding, size of welds, Welding Rod type etc.
3. August 5, 2009, Entry: "Installed jack pads on Superhenc trailer."
Inadequacy: This package has no steps that provide direction for removal or installing jack pads on the SuperHenc.
4. August 10, 2009, Entry: "DA recommends the mount for the ball nut be tapped for a set screw to maintain manufacturer's recommended orientation."
Inadequacy: This package has no steps that provide direction or drawings, set screw specifications (pitch, dia., set screw material type) that would enable a proper modification. No information is provided on what is the manufacturer's recommended orientation.
5. August 14, 2009, Entry: "...permission to change out lighter springs in gearbox to the heavier spring..."

Inadequacy: This package has no steps that provide direction on how these springs are to be installed.

During the review of the package the FR also noted:

- The work record had been signed-off by the Field Work Supervisor (FWS) and the Operations Acceptance had been completed, but the partial release (Lock/Tag status and FWS completion) had not been performed for the last section;
- The JCS Record for FWS work complete and the Operations Acceptance was not completed;
- The JCS Status of the package had not been updated at various times, including the Scheduled-Ready To Work; and
- The WHA that was used during the work was filled out, except that the FWS never signed the signature block approving the WHA.

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

Finding: S-09-OOD-CHPRC-D4-004-F06

Inadequate work hazard planning causes workers to receive a low level intake of airborne radioactivity during breach into a UO3 system; A prior occurrence of elevated airborne radioactivity on breaching the system did not result in an adequate review of the radiological work planning

Requirement:

10 CFR 835.1001 (a) specifies "Measures shall be taken to maintain radiation exposures in controlled areas ALARA through physical design features and administrative control. The primary methods used shall be physical design features (e.g., confinement, ventilation...."

CHPRC-00073, Conduct of Radiological Work, Section 313 Steps 1.c, 1.d.2 and 4 which states in part:

Step 1.c, "When engineered and administrative controls have been applied and the potential for airborne radioactivity still exists, respiratory protection should be used to limit internal exposures."

Step 1.d.2, "Use of respiratory protection should be considered under the following conditions - Breach of contaminated systems or components."

Step 1.d.4, "Use of respiratory protection should be considered under the following conditions - Work on contaminated or activated surfaces with the potential to generate airborne radioactivity."

Discussion:

FR observed work activity related to removing viewing flanged connections on systems that have UO3 contamination. Before the first flanged connection was loosened Decontamination & Decommissioning workers were repeatedly warned to apply water spray mist on the flanged connections and to ensure that they were wearing their face

shields. The concern was getting UO3 particulates on the worker's face. Workers did not require the use of respirators during the job but they wore lapel air samplers that indicated exposure to UO3 contamination greater than 1 DAC-hr. This lapel air sample decayed to 0.85 DAC-hr. The job site air sample was 0.18 DAC. The project did not adequately review the work planning for intrusive work at U Plant after the unexpected elevated air sample was obtained during the removal of flanges. Another low level airborne radioactivity intake occurred on September 29, 2009.

The second job was even more intrusive than the first job. A drill was used to cut 2 inch diameter holes into the contaminated system for spraying fixative in the system. The workers lapel air sampler measured 4.34 DAC-hr and the grab air sampler measured 2.64 DAC. This exceeded the posting criteria for an airborne radioactivity area. Engineered controls were not implemented during the cutting of 2 inch diameter holes into the UO3 system using a drill. Additionally, Radiological Work Permit (RWP) (BU-09-002) did not require the use of respirators when workers were breaching into a contaminated system that could cause a potential exposure to airborne contamination.

The first event should have been a trigger to look at the job planning; particularly the technical work performed in estimating airborne radioactivity levels from the planned work activities. Had a technical review been performed, the errors in the airborne radioactivity estimates might have been identified earlier (see Findings S-09-OOD-CHPRC-D4-004-F07 and S-09-OOD-CHPRC-D4-004-F08).

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-CHPRC-D4-004-F07

Miscalculation and assumptions resulted in underestimated airborne radioactivity concentrations in the Technical Evaluation and Airborne estimates for 224 U/UA.

Requirements:

10 CFR 835.603(d) Radiological areas and radioactive material areas. Each access point to radiological areas and radioactive material areas (as defined at § 835.2) shall be posted with conspicuous signs bearing the wording provided in this section. Airborne Radioactivity Area. The words "Caution, Airborne Radioactivity Area" or "Danger, Airborne Radioactivity Area" shall be posted at each airborne radioactivity area.

Airborne radioactivity area means any area, accessible to individuals, where: (1) The concentration of airborne radioactivity, above natural background, exceeds or is likely to exceed the derived air concentration (DAC) values listed in appendix A or appendix C of this part; or (2) An individual present in the area without respiratory protection could receive an intake exceeding 12 DAC-hours in a week.

10 CFR 830.122, "Quality assurance criteria, (c) Criterion 3 - Management/Quality Improvement. (1) Establish and implement processes to detect and prevent quality problems.

Discussion:

- The airborne estimate in TE-BOS-DD-09-035-0 used an incorrect resuspension factor to calculate the anticipated airborne radioactivity concentration.

TE-BOS-DD-09-035-0, "Balance of [Site] Deactivation and Decommissioning Project: Remediation of U Ancillary (UO₃) and its Associated Facility in 200 West Area," on page 5 states:

"However, the calculated airborne radioactivity levels presented in Table 5 also suggest nearly 0.1 DAC will be achieved when performing intrusive activities, which is represented in the equation below by 1E-6/meter."

The contractor's Air Monitoring Technical Basis document specifies "1E-6/meter," as the resuspension factor for "Tours, Hand off inspections, Non-intrusive work," which is not consistent with the statement that the work included intrusive activities. The contractor's Air Monitoring Technical Basis document specifies a resuspension factor of either 1 E-5 meter⁻¹ or 1 E-4 meter⁻¹ for intrusive work, and mechanical cutting. The work evolution being performed at the time of the unplanned airborne condition is more accurately represented by the either 1 E-5 meter⁻¹ or 1 E-4 meter⁻¹. The contractor's use of an incorrect resuspension factor resulted in underestimation of the anticipated airborne concentration. Use of the disruptive resuspension factors would result in airborne concentrations similar to those encountered during the drilling work on 9/29/09.

- The contractor did not post the area as an Airborne Radioactivity Area when calculated air concentration estimate value exceeded the stated requirement for establishing Airborne Radioactivity Area controls.

TE-BOS-DD-09-035-0, "Balance of [Site] Deactivation and Decommissioning Project: Remediation of U Ancillary (UO₃) and its Associated Facility in 200 West Area," on page 5 states:

"Based on the anticipated worst-case remedial activity concentrations for uranium decay chain potential to exceed 0.1 DAC is not anticipated (see Table 5 below)."

However, the data in table 5 shows the estimated air concentration estimated Total DAC was 0.415 DAC. The surveillant verified the calculations based on the contractor's use of the erroneous non-intrusive resuspension factor and the data contained in TE-BOS-DD-09-035-0 as mathematically accurate. The calculated concentration exceeds the contractor's posting and control level for Airborne Radioactivity Areas. The air estimate is also in conflict with the statement on page 5, which states that, "airborne radioactivity posting requirements will be implemented a 0.3 DAC."

- Contrary to contractor's Workplace Air Monitoring Technical Basis Document, TE-BOS-DD-09-035-0 does not indicate that total contamination levels were assessed for the cutting and other intrusive activities that can resuspend both fixed and removable contamination.

TE-BOS-DD-09-035-0 states that the air concentration estimate was based on smear samples, which represent removable contamination levels. The description of work indicates that the work activities included intrusive work with the potential to disturb fixed contamination making it available for resuspension.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-CHPRC-D4-004-F08

Technical Evaluation and Airborne estimates for 224 U/UA records do not provide sufficient detail for future reference and contain errors.

Requirements:

10 CFR 830.122, "Quality assurance criteria, (c) Criterion 3 - Management/Quality Improvement. (1) Establish and implement processes to detect and prevent quality problems."

DOE/RL-2002-12 HSD J.3, 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 B.S. in health physics; for the life of the record).

Discussion:

TE-BOS-DD-09-035-0, "Balance of [Site] Deactivation and Decommissioning Project: Remediation of U Ancillary (UO₃) and its Associated Facility in 200 West Area," contains the following omissions or errors:

- Table 2 of TE-BOS-DD-09-035-0, identifies Th-228 as an alpha emitter detected by the laboratory analysis. The DAC for Th-228 is $4.0 \text{ E } -12 \text{ uCi/ml}$ (more restrictive than the DAC values used in the document) but not further discussed.
- Text on both page 5 and 7 states that the contamination limits to be used for personnel survey and tools and equipment release for alpha are 20 dpm/100cm^2 removable and 100 dpm/100cm^2 total. TE-BOS-DD-09-035-0 does not state the basis for this. The lack of discussion is compounded by the error below, which appears to identify Th-228 as Th-238. The surveillant assumes that Th-228 is the basis for the limits but the document does not state this.
- Page 2 second to last paragraph states that "U-235 and Th-238 are the only alpha emitters detected" Th-238 is not listed in the analytical results provided in the document's tables. While a reasonable assumption would be that this is meant to be Th-228, the interpretation of records should not depend on assumption.
- TE-BOS-DD-09-035-0 refers to an out of date Workplace Air Monitoring Technical Basis document. On page 5, TE-BOS-DD-09-035-0 references an equation to HNF-3258, Rev. 8. At the time TE-BOS-DD-09-035-0 was approved, the Workplace Air

Monitoring Technical Basis document in effect was TE-Central-08-002-0, approved in July 2008.

- In addition to the technical errors noted, TE-BOS-DD-09-035-0 contains a number of typographical errors that while minor, that potentially indicate a lack of attention to detail in document development, review and approval. These errors include the following:
 - The title refers to “Balance of Sit” as opposed to Balance of Site.
 - On page 3 the word bookkeeping is documented as “book kipping.”

Task specific airborne concentration calculation document.

- The 2 documents provided as the job specific air estimate both state that the “Resuspension factor is for non-intrusive work. However, the factor used is the resuspension factor for “Sweeping, Grinding, flapper wheels, movement of contamination cobble.” The factor used is representative of the actual work but the record contains the wording of non-intrusive work in error.
- The Resuspension Factor Values and Work Description table provided on the form does not accurately reflect the resuspension values and associated work descriptions in the Workplace Air Monitoring Technical Basis document that was in effect PRC-09804-CDMP-00011.

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

Finding: S-09-OOD-CHPRC-D4-004-F09

Chemical exposure to UO3 was not addressed in the Automated Job Hazard Analysis (AJHA); the contractor did not provide respiratory protection and/or evaluate employee’s potential exposure to uranium during a pipe drilling operation.

Requirements:

29 CFR 1910.134(d)(1)(iii) specifies: The employer shall identify and evaluate the respiratory hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where the employer cannot identify or reasonably estimate the employee exposure, the employer shall consider the atmosphere to be immediately dangerous to life or health.

Discussion:

The surveillants reviewed AJHA ID:FS-683. The AJHA did not include UO3 as a chemical hazard. The only chemical identified was Simple Green. The AJHA does not demonstrate the contractor evaluated the personnel potential chemical exposure to uranium. Employers are required to evaluate the chemical hazards in the workplace and ensure employees are provided adequate protection.

Worker exposure to uranium or an insoluble uranium compound can occur via inhalation, ingestion, and eye or skin contact. Exposure to uranium trioxide can occur by absorption through the skin, eyes, and mucous membranes. Quantitative data is not available on the odor threshold for uranium or insoluble uranium compounds; several of these substances are odorless.

Effects on Humans: Metallic uranium and insoluble uranium compounds may produce both chemical poisoning and radiation injury. The insoluble uranium compounds are less toxic chemically than the soluble compounds, but uranium and all uranium compounds have the potential to cause radiation damage

Exposure to the dusts of uranium or to an insoluble uranium compound may cause respiratory irritation, cough, and shortness of breath. Dermatitis has also been reported, and prolonged skin contact causes radiation injury to the basal cells.

Effects on Animals: Animal studies also showed the inhalation toxicity of uranium and the insoluble compounds of uranium is much greater than their oral toxicity. Uranium trioxide is lethal when placed in the conjunctival sac of rabbits' eyes.

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

Finding: S-09-OOD-CHPRC-D4-004-F10

Employees, exposed and/or potentially exposed to uranium dust during a pipe drilling operation were not provided adequate Personal Protective Equipment (PPE) to protect facial skin and eyes.

Requirement:

29 CFR 1926.95(a) specifies "Application." Protective equipment, including PPE for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Discussion:

The surveillants reviewed the RWP BU-09-002 and AJHA. Hoods were not required if no overhead contamination hazards existed and with the approval of the Radiological Control Technician providing coverage for the work. The AJHA does not adequately specify PPE requirements (conditions when required). Face shields were worn during the second airborne event. Faceshields do not protect the skin and or eyes from airborne dust. The worker indicated he felt a puff of air on his face. The air contained UO3 dust as identified on an air sampler filter.

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

Observation: S-09-OOD-CHPRC-004-001

Failure to define Troubleshoot/Repair Package periodic evaluation requirements can inhibit clear documentation of work performed. [OA 26011]

Discussion:

The current requirements of PRC work management procedure (PRC-PRO-WKM-12115) provide for periodic evaluation of skill based planned work instructions every three years. The procedure further requires MWTs and no planning required packages to be closed and a new document generated.

A review of Waste and Fuels facility work packages identified no instances of routine troubleshoot and repair work packages older than 2008 at the CWC or T plant. The packages provide a good balance of work instructions and clear mechanisms for specific activity scope definition (appendix for CWC and tailored packages at T plant).

By contrast, multiple WRAP troubleshooting work packages (W1-07-3833, W1-05-6935, W1-07-8125, W1-07-8122, and W1-07-8123) are older than a year and have become unwieldy and confusing. This confusion is further accentuated by the practice of incorporating instructions and controls into the J-5 work record and apparent use of engineering direction (See F01). To ensure clear configuration control and work performed, consideration should be given to defining a timeframe for closure and opening of new troubleshoot and repair work documents.

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

Observation: S-09-OOD-CHPRC-004-002

The Work Management Procedure has some inadequate areas of direction in its use when being applied to "Standing" Minor Work Tickets (MWTs). [OA 25971, 26011]

Discussion:

The RL FR attended a pre-job for General Carpenter support and found multiple Work Record entries documenting various types of carpenter support at various times in an attached work record. The work was being performed with a MWT (09-006) at WRAP.

The Work Management Procedure (PRC-PRO-WKM-12115), section 3.3.1.2 has guide lines for use of MWT that have been created to support "Standing" work. It appears that the initial creation of this practice was for repetitive work to prevent filling out MWTs over and over; these MWTs would then be valid for a year. The Work Management Procedure has some inadequate areas of direction in its use when being applied to "Standing" MWTs that are similar but not exact work. Following are the inadequacies:

1. The FWS documents the initial Radiological Risk Screening on form (A-6003-492), but for the following similar (not exact) work found in the Work Record, there is no

Radiological Risk Screening documented. The FWS is required to determine if the Radiological Risk Screening needs to be updated, but no direction is given on where that is documented.

2. The Work Management Procedure does not provide direction to the FWS to utilize the Work Record as a means to document similar work or anything else associated with the MWT; which appears to be the current practice.
3. MWT Form (A-6003-492) upon completion of work requires signatures of Craft, FWS/PIC, and Acceptance Authority, but as a Standing MWT there is no procedural direction.

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

Observation: S-09-OOD-CHPRC-004-O03

The Work Control Process needs to address how individual hazard controls are addressed for Skill Based Work and Worksite Hazards Analysis (WHA). [OA 26011]

Discussion:

During the performance of this review, the review team found multiple instances where hazard controls (e.g., spotter on T plant crane, Shock hazards analysis, WRAP Ansul bottles) exist, but are not captured in a document that can be referenced in the WHA. Further, the form is not designed with a line to reference the existing hazards analysis. For clarity, it would be beneficial to replace the other line and create a "hazards analysis" line to encourage the expected behavior to reference existing hazards analysis to support control and PPE selection.

In some instances, these types of controls are being captured within the skill based work instructions that are subsequently approved by the associated subject matter expert (SME). This practice does not appear to be described in the PRC work management process, although it appears to meet applicable requirements. A more common approach is to just identify the control in the WHA that is subsequently signed by the supervisor. This approach does not involve the SME and leads to errors in the field. In one instance, a WHA was observed to include both the supervisor and SME concurrence on the bottom of the WHA. There appears to be an opportunity to improve how hazard controls and PPE are documented and controlled for skill based work.

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

Observation: S-09-OOD-CHPRC-D4-004-O04

Insufficient Work Instruction Detail for controls used during breeching of UO3 system at U-plant. [OA 25915]

Discussion:

FR observed work activity related to removing viewing flanged connections on systems that have UO₃ contamination. Before the first flanged connection was loosened, D&D workers were repeatedly warned to apply water spray mist on the flanged connections and to ensure that they were wearing their face shields. The concern was getting UO₃ particulates on the worker's face. A review of work package CP-09-00378 does not list these two actions anywhere in the body of the work instruction. Also, a permanent ladder was used to gain access to an elevated platform. FR could not find any controls embedded in the work package such as safety chains in place or access safety gate closed.

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

Observation: S-09-OOD-CHPRC-D4-004-O05

Recent increases in self-identified radiological work non-compliances may indicate a negative trend in radiological work practices. [OAs 26010, 25743, 25744, 25918 and 25898]

Discussion:

Workers failed on two separate occasions to observe the PPE required prior to entry into a contamination area as listed on the RWP. One worker entered a contaminated area without wearing a radiological hood and another worker entered a radiological controlled area without radiological gloves.

A RCT failed to notify workers that a RWP void limit was reached and he allowed work to continue. Following completion of work he relayed his information to a lead RCT who failed to take prompt action. In another occurrence an RCT briefed the U-Plant D&D on the wrong RWP; work was allowed to continue and the RCT did not catch his error until the next day. No one involved with the initial pre-job brief questioned the RCT as to why PPE requirements changed, void limits increased on the RWP, or if personnel had to "ACE" in under a new RWP.

During D&D work activity workers were repeatedly warned to apply water spray mist on the flanged connections and to ensure that they were wearing their face shields. The concern was getting UO₃ particulates on the worker's face. Workers did not require the use of respirators during the job but they wore lapel air samplers that indicated exposures to UO₃ contamination greater than 1 DAC.

The examples presented above represent weakness in radiological control practices. RL lead assessor closure has been selected to evaluate how this collection of weaknesses is evaluated and resolved by CHPRC.

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

Observation: S-09-OOD-CHPRC-D4-004-O06

The format of the form used to estimate airborne concentrations provides an opportunity for Human Performance Improvement (HPI) type errors by allowing for an error likely situation.

Discussion:

The first formula listed on the form includes a pre-printed default resuspension (Sf) value of $1E-6$ meters⁻¹ units. While the two of the three calculations available on the form use the resuspension factor in centimeters⁻¹ units. In this case, the numerical value is identical, $1E-6$. This represents a potential HPI opportunity for error, potentially setting up the user for an error likely situation.

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

Contractor Self-Assessment:

A review of the CHPRC Integrated Evaluation Plan indicates there are seven reviews, of various types, of work control processes scheduled in the Maintenance area for CHPRC in 2009. Two of the seven reviews in the Maintenance area are completed. The two completed surveillances were both performed at Groundwater and were found to be adequate. There isn't any scheduled oversight of work control specifically for the D4 Projects. There were three reviews scheduled for cross-cutting projects but none are currently complete. Two of these reviews have a due date of September 30, 2009. Ten other reviews in other subject areas that, by their title, are related to work control, of these none were scheduled specifically for the D4 Projects. Based upon the pace of work planned due to stimulus funding, PRC oversight of work control implementation at each facility should be considered.

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

Management Debriefed:

Steve Carter, CHPRC
Steve Doebler, CHPRC
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Ted Jarecki, CHPRC
Don Moak, M&EC

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Todd Synoground, CHPRC



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

09-SED-0195

NOV 04 2009

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 CHPRC APPLICATION
OF CODE OF RECORD (S-09-SED-PRC-027)

The purpose of this letter is to forward the subject surveillance report. This surveillance identified three findings and three observations which are documented in the attached report. No formal response to this letter is required. However, please note that RL closure verification is required for both 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 cursive script that reads "Ian Osso".

Ian Osso
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 C. West

Surveillance Number: S-09-SED-PRC-027

Date Completed: September 23, 2009

Contractor: CHPRC

Facility: General

Title: Application of "Code of Record"

Guide: FPS12.2

Surveillance Scope:

The objective of this surveillance was to evaluate the contractor's effectiveness in the application of fire protection requirements pertaining to design, alteration, modification, and maintenance of structures, facilities, and conditions. The surveillance was initiated after several instances were found where inappropriate codes and standards were identified as the Code in force for the facility or operation.

Surveillance Summary:

This surveillance reveals that the CHPRC needs improvement in the application of pertinent fire protection codes and standards to existing buildings and operations. The surveillance activities resulted in the identification of the following three findings and three observations.

- **S-09-SED-PRC-027-F01** The Solid Waste Operations Complex (SWOC) Fire Hazards Analysis (FHA) misuses the Code of Record in several places for operations versus design related requirements.
- **S-09-SED-PRC-027-F02** The Waste Management Program procedures do not identify specific requirements driven by Washington Administrative Code (WAC)

173-303 and the International Fire Code (IFC), and no procedures in the Waste Management Program were found that identifies the Maximum Allowable Quantity (MAQ) per Control Area for hazardous materials posing a physical hazard in facilities as specified in the IFC.

- **S-09-SED-PRC-027-F03** The Chemical Management Program procedures do not identify specific requirements driven by the Fire Code (NFPA 1), and no procedures in the Chemical Management Program were found that identifies the Maximum Allowable Quantity (MAQ) of Hazardous Materials per Control Area for facilities as specified in the Fire Code.
- **S-09-SED-PRC-027-O01** The Fire Protection Engineers are performing ignitable and reactive waste storage inspections to satisfy WAC 173-303, but it is not clear if the inspections are verifying if the storage amounts are below the Maximum Allowable Quantity (MAQ) listed in the International Fire Code.
- **S-09-SED-PRC-027-O02** The CHPRC appears to be weak on Code of Record references for design related functions, as a clear reference path could not be found from the top level of CHPRC procedures down to the HNF-RD-9118 procedure on fire protection design, where the code of record is addressed, and the facilities do not appear to have specific guidance on this issue.
- **S-09-SED-PRC-027-O03** Some CHPRC documents still refer to older fire protection related codes, standards, and directives instead of the most recent editions as required for operations activities.

Surveillance Results:

Finding: S-09-SED-PRC-027-F01

The SWOC FHA misuses the Code of Record in several places for operations versus design related requirements.

Requirement(s):

DOE O 420.1B, Attachment II, Chapter II, Section 3, Requirements:

a. General. "Fire protection for DOE facilities, sites, activities, design, and construction must—

(1) provide a level of safety sufficient to fulfill requirements for highly protected risk (HPR);

(2) prevent loss of safety functions and safety systems as determined by safety analysis and provide defense-in-depth; and

(3) meet or exceed applicable building codes for the region and NFPA codes and standards as follows.

(a) Facilities or modifications thereto must be constructed to meet codes and standards in effect, when design criteria are approved, otherwise known as the Code of Record (COR).

(b) Provisions of subsequent editions of codes or standards (promulgated after the COR) must be met to the extent that they are explicitly stated to be applicable to existing facilities. Other provisions of updated codes and standards must be applied to existing facilities when a construction modification takes place or when a potential for immediate risk to life safety or health has been identified through either the facility assessment or fire hazards analysis (FHA) review process, or during the construction review or permitting process.”

CRD 420.1B, Supplemented, Rev.1, Section B.7.c states: “Aspects related to fire protection shall comply with the most recent edition of the applicable NFPA Code or Standard. The fire protection related codes and standards in effect when facility final design commences (code of record) remain in effect for the life of the facility. When modifications of a substantial nature occur, as determined by the AHJ, the current edition of the code shall apply to the modification. EXCEPTION: If there is a significant hazard that endangers building occupants, the public, or the environment as determined by the AHJ, the facility shall be upgraded to the requirements of the current edition of the code or standard.”

HNF-RD-9118, Rev 7, Fire Protection Design / Operations Criteria, Section 2.1 (2) and (3):

- (2). “Compliance with the most recent edition of the applicable NFPA Code and Standard shall be required for operational aspects of fire protection.”
- (3). “The fire protection related codes and standards in effect when facility final design commences (code of record) shall remain in effect for the life of the facility unless:
 - A significant hazard is identified as endangering the building occupants, the public, or the environment.
 - Substantial upgrades or modifications are made to the building and/or fire protection systems.

In these cases, the facility shall be upgraded to the current requirements of the applicable code or standard (which becomes the code of record). When completed, each design, upgrade, installation, and modification shall be maintained in accordance with the code of record. If compliance cannot be achieved, see Section 2.2 (exemptions and equivalencies) of this document.”

2006 Uniform Fire Code / 2009 Fire Code

- Section 1.3.1, “This Code shall apply to both new and existing conditions.”
- Section 10.1 Fundamental Requirements,
 - 10.1.1 “Every new and existing building or structure shall be constructed, arranged, equipped, maintained, and operated in accordance with this Code so as to provide a reasonable level of life safety, property protection, and public welfare from actual and potential hazards created by fire, explosion, and other hazardous conditions.”
 - 10.1.2 Life Safety Code. “Every new and existing building shall comply with this Code and NFPA 101, Life Safety Code.”

10.1.3 Building Code. "Where a building code has been adopted, all new construction shall comply with this Code and with the building code."

Discussion:

The surveillant reviewed the FHA and identified several instances where the SWOC FHA misuses the Code of Record for operations versus design related requirements including Section 4.3.3 for the 214 Building, where out-of-date references are made related to the operational storage requirements for waste containers containing flammable and/or combustible waste. The current edition of the IFC should be used instead of the 1991 UFC. Other facilities and examples where out-of-date references were used, instead of the latest editions of the codes, for facility operations at SWOC included: NFPA 231, *General Storage*, 1987 and 1990 editions; NFPA 30, *Flammable and Combustible Liquids Code*, 1993 edition; and, NFPA 231C, *Standard for Rack Storage of Materials*, 1991 edition.

Code of Record should strictly be a design issue, not for operational applications. Operations should work within the limitations of the design by adjusting their operations to those design limitations. Compliance with the most recent edition of the applicable NFPA Codes and Standards shall be required for operational aspects of fire protection in the SWOC FHA, as required by Fire Protection Design/Operations Criteria, HNF-RD-9118.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-PRC-027-F02

The Waste Management Program procedures do not identify specific requirements driven by WAC 173-303 and the International Fire Code, and no procedures in the Waste Management Program were found that identify the Maximum Allowable Quantity (MAQ) per Control Area for hazardous materials posing a physical hazard in facilities as specified in the IFC.

Requirement(s):

10CFR830.122 Quality assurance criteria. "The QAP must address the following management, performance, and assessment criteria:
(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."

DOE O 420.1B, Chapter II, Section 3.a (3), states that the fire protection for DOE facilities will “meet or exceed applicable building codes for the region and NFPA codes”. The following clarification is provided in SCR D O 420.1B (Rev. 1), Section B (7) b.: “Typically the International Fire Code (IFC) is a companion document to the IBC. However, for DOE operations, the IFC shall only be applied when the generation, treatment, storage, and disposal of ignitable and reactive wastes, defined in DANGEROUS WASTE REGULATIONS, WAC 173-303, is required by the Tri-Party Agreement. The NFPA 1, Uniform Fire Code, takes precedence over other situations. Other requirements of IFC are not considered criteria but may be used as a guide when established criteria do not address a specific situation.”

WAC 173-303-395 Other general requirements. (1) “Precautions for ignitable, reactive, or incompatible wastes. (d) At least yearly, the owner or operator must inspect those areas of his facility where ignitable or reactive wastes are stored. This inspection must be performed in the presence of a professional person who is familiar with the International Fire Code, or in the presence of the local, state, or federal fire marshal. The owner or operator must enter the following information in his inspection log or operating record as a result of this inspection.”

International Fire Code (IFC), Chapter 27, Section 2703 and in Table 2703.1.1(1), “Maximum Allowable Quantity (MAQ) per Control Area of Hazardous Materials Posing a Physical Hazard.” The maximum amount of a hazardous material allowed to be stored or used within a control area inside a building or an outdoor control area, and the maximum allowable quantity per control area is based on the material state (solid, liquid or gas) and the material storage or use conditions. Exceeding this amount will place the use area or building into a hazardous occupancy and additional protection requirements.

Discussion:

The Maximum Allowable Quantity (MAQ) per Control Area of hazardous materials posing a physical hazard in facilities shall be controlled and limited as specified in the International Fire Code (IFC), Chapter 27, Section 2703 and in Table 2703.1.1(1), as required by SCR D O420.1B and WAC 173-303-395. This was not adequately addressed in CHPRC Waste Management Program documents, including the CHPRC WFMP Project Procedures Administrative Procedure, WMP-200, Section 6.1, Waste Acceptance Program, even though there are several references to WAC 173-303. Also, WMP-200, 6.1, 2.2.3, Waste Analysis Plans refers to WAC 173-303-300 (5) and (6) and requires that TSD facilities prepare and follow Waste Analysis Plans (WAP), which address the waste analysis and waste confirmation process described, along with some additional requirements. WAPs provide detailed procedures for acceptance of dangerous wastes at Hanford TSD units.

From WMP-200, 6.1, Table 1. Current Applicable Waste Analysis Plans include:

<u>TSD Unit</u>	<u>Waste Analysis Plan</u>
CWC	HNF-1886, Central Waste Complex Waste Analysis Plan
WRAP	HNF-2165, Waste Analysis Plan for the Waste Receiving and Processing Facility

LLBG
T Plant

HNF-5841, Low-Level Burial Grounds Waste Analysis Plan
HNF-9921, Waste Analysis Plan for the T Plant Complex

The WAPs identify the majority of the waste confirmation requirements for dangerous waste. These WAPs and other related procedures do not address the required Maximum Allowable Quantity per Control Area of hazardous materials posing a physical hazard in facilities as specified in the IFC. The SWOC Technical Safety Requirements, HNF-15280, addresses maximum quantity of fuel in vehicles that is allowed, but does not address the required Maximum Allowable Quantity per Control Area of hazardous materials in containers and materials posing a physical hazard in facilities as specified in the IFC. No reference or requirements for MAQ could be found in SWITS related documents and manuals. No reference or requirements for MAQ could be found in the Hanford Site Solid Waste Acceptance Criteria, HNF-EP-0063.

HNF-SD-CP-FHA-004, REV 2, PFP D&D FHA, as an exception does refer to lab pack storage as defined by WAC 173-303. However, criteria presented for the maximum quantities of flammable and combustible liquids stored per controlled area refers to the UFC 1994 edition instead of the current edition of the IFC as required by the WAC for this type of storage and operation.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-SED-PRC-027-F03

The Chemical Management Program procedures do not identify specific requirements driven by the Fire Code (NFPA 1), and no procedures in the Chemical Management Program were found that identifies the Maximum Allowable Quantity (MAQ) of Hazardous Materials per Control Area for facilities as specified in the Fire Code.

Requirement(s):

10CFR830.122 Quality assurance criteria. "The QAP must address the following management, performance, and assessment criteria:

(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."

Chapter II, Section 3.a (3) of DOE O 420.1B states that the fire protection for DOE facilities will "meet or exceed applicable building codes for the region and NFPA codes". The following clarification is provided in SCR D O 420.1B (Rev. 1), Section B (7) b.: "Typically the International Fire Code (IFC) is a companion document to the IBC. However, for DOE operations, the IFC shall only be applied when the generation,

treatment, storage, and disposal of ignitable and reactive wastes, defined in DANGEROUS WASTE REGULATIONS, WAC 173-303, is required by the Tri-Party Agreement. The NFPA 1, Uniform Fire Code, takes precedence over other situations. Other requirements of IFC are not considered criteria but may be used as a guide when established criteria do not address a specific situation.”

NFPA 1, Fire Code, Section 60.1.26, Quantity Limits and in Table 60.1.26.1, “Maximum Allowable Quantity (MAQ) of Hazardous Materials per Control Area.” The maximum amount of a hazardous material allowed to be stored or used within a control area inside a building or an outdoor control area, and the maximum allowable quantity per control area is based on the material state (solid, liquid or gas) and the material storage or use conditions. Exceeding this amount will place the use area or building into a hazardous occupancy and additional protection requirements.

Discussion:

The Maximum Allowable Quantity (MAQ) of hazardous materials per control area in facilities shall be controlled and limited as specified in NFPA 1, Fire Code, Section 60.1.26, Quantity Limits and in Table 60.1.26.1. This was not adequately addressed in CHPRC Chemical Program documents including the CHPRC Chemical Management Program, PRC-MP-SH-40015, *Chemical Management Plan*, and PRC-PRO-SH-10468, *Chemical Management Process*. The CHPRC Chemical Management Program did include a section on Chemical Tracking Criteria and Uniform Fire Code Occupancy Permit Limits Table, but this is for permit purposes and is not the same as the required MAQ. As a related observation, the CHPRC Chemical Tracking Criteria UFC Occupancy Permit Limits referenced an older version of UFC and not the current edition, NFPA 1-Fire Code 2009, and Tables 1.12.7 (a), (b), (c), and (d). The CHPRC Chemical Management Process, Appendix A, also included references to UFC occupancy permit limits, but not the required MAQ of hazardous materials. The CHPRC Chemical Management Process, Chapter 3.3.d, Chemical Storage, includes a cross reference to the requirements of HNF-RD-9717, Fire Protection/Prevention for Construction, Occupancy/Demolition Activities, if the contents of the container are flammable or combustible. The cross reference leads to Section 2.2.4.b of HNF-RD-9717, where Control Areas and MAQ are referenced based on NFPA 30, Flammable and Combustible Liquids Code. This is a difficult path for the requirements that needs to be more clearly stated in CHPRC procedures, and implemented by the contractor. This NFPA 30 path only partially addresses the range of hazardous materials inside a facility or in an outdoor control area. The maximum amount of a hazardous material allowed to be stored or used within a control area inside a building or an outdoor control area, and the maximum allowable quantity per control area is based on the material state (solid, liquid or gas) and the material storage or use conditions. Exceeding this amount will place the use area or building into a hazardous occupancy and additional protection requirements.

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

Observation: S-09-SED-PRC-027-O01

The Fire Protection Engineers are performing ignitable and reactive waste storage inspections to satisfy Washington Administrative Code (WAC) 173-303, but it is not clear if the inspections are verifying if the storage amounts are below the exempt amounts listed in the International Fire Code.

Discussion:

The Contractor's procedure for T Plant Administrative Procedure, RCRA/TSCA INSPECTIONS, WMP-340, Section 4.05, 2.1, Minimum Inspection Requirements for Container Storage requires that "T Plant container storage areas storing ignitable (D001) and/or reactive (D003) waste must be inspected at least yearly by an individual familiar with the Uniform Fire Code [now International Fire Code] or in the presence of a local, state, or federal fire marshal. The inspection record generated from this yearly inspection must include date and time of the inspection, name of the professional inspector or fire marshal, a notation of observations, and any remedial actions taken as a result of the inspection." Section 3.0 of this same procedure requires that "All inspection data sheets will be maintained for 5 years in accordance with WAC 173-303." This procedure should be revised to reference the International Fire Code (instead of the Uniform Fire Code) as required by SCR D 0420.1B and WAC 173-303-395.

A one-page form has been created to document these and other facility inspections titled "Hanford Fire Department Ignitable/Reactive Waste Fire Inspection." This form has ten subject areas to be inspected that require a determination of "Action Required" or "No Discrepancy." However, near the bottom of the form is a stand alone statement that reads "Chemicals/substances known or anticipated to exceed exempt quantities specified in the IFC, Chapter 27" that requires no determination of Action Required or No Discrepancy, as addressing this seems to be left up to the individual inspector. Although the T Plant Complex 2008 inspection record sheet addresses this by stating, "Wastes defined as physical hazards come in small quantities not exceeding exempt amounts. Operations and facilities at T Plant meet IFC requirements where required.", other facility record sheets for the past five years contain vague statements or are left blank.

For 2008 and 2009 these facility specific inspection data sheets/records should be kept by the facility Contractor, but this appears to be building by building records and there did not appear to be a central tracking or record keeping system which would demonstrate that all required ignitable or reactive waste storage facilities had been inspected at least yearly as required by WAC 173-303-395. For 2007 and earlier these records were kept by the Fire Marshal's office, but even that system was not clear if all required facility specific inspection data sheets had been completed as they were in several files with blanks appearing on some yearly facility status tracking sheets. Refer to HNF-RD-10606, Fire Protection Program Responsibility Requirements, 2.4.1.1.

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

Observation: S-09-SED-PRC-027-002

The CHPRC appears to be weak on Code of Record references for design related functions, as a clear reference path could not be found from the top level of CHPRC procedures down to the HNF-RD-9118 procedure on fire protection design, where the Code of Record is addressed, and the facilities do not appear to have specific guidance on this issue.

Discussion:

Of the hierarchy of contractor design documents, it appears that only *HNF-RD-9118, Fire Protection Design/Operations Criteria* addresses the Code of Record requirements. Other documents and procedures have indirect or no reference to the specific Code of Record requirements, or the requirements in HNF-RD-9118. These include:

- PRC-RD-EN-1819, CHPRC Engineering Requirements
- PRC-PRO-EN-20050, Engineering Configuration Management
- PRC-PRO-EN-2001, Facility Modification Package Process
- PRC-PRO-EN-8016, Design Change Notice Process
- PRC-PRO-EN-8336, Design Verification
- PRC-GD-EN-8004, Functional Requirements Document

Although the Functional Design Criteria, PRC-PRO-EN-8258, refers to HNF-RD-9118 for FDC Preparation, it also refers to out of date requirements that confuse what the Code of Record should be. For example, it still refers to the Uniform Building Code which is no longer applicable. SCR D O 420.1B requires that “New facilities and facility modifications must conform to the fire resistance requirement, allowable floor area, building height limitations, and building separations for the International Building Code (IBC).” SCR D O 420.1B goes on to explain how the IBC relates to use of NFPA 5000, Building Construction and Safety Code, and NFPA 101, Life safety Code. SCR D O 420.1B goes on to state: “Aspects related to fire protection shall comply with the most recent edition of the applicable NFPA Code or Standard. The fire protection related codes and standards in effect when facility final design commences (code of record) remain in effect for the life of the facility. When modifications of a substantial nature occur, as determined by the AHJ, the current edition of the code shall apply to the modification. EXCEPTION: If there is a significant hazard that endangers building occupants, the public, or the environment as determined by the AHJ, the facility shall be upgraded to the requirements of the current edition of the code or standard.” Other than the HNF-RD-9118 Code of Record requirements, this fundamental fire protection requirement for facility design and modification is vague or missing in contractor design procedures.

It was also noted that the PRC-PRO-EN-20051, Attachment 1, CHPRC Required Reading Matrix only required the Fire System Engineers to become familiar with HNF-RD-9118, which contains the contractor requirements for Code of Record. Other design engineers and managers have not been required to be familiar with these requirements, and they should be.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-SED-PRC-027-003

Some CHPRC documents still refer to older fire protection related codes, standards, and directives instead of the most recent editions as required for facilities and operations activities.

Discussion:

As stated in SCR D O 420.1B and DOE G 420.1-3, the term Code of Record only applies to NFPA codes and standards, not DOE Orders such as DOE O 6430.1A and DOE O 5480.7A. However, DOE STD 1066-99, Fire Protection Design Criteria, replaces certain mandatory fire protection requirements that were formerly in DOE 5480.7A, "Fire Protection," and DOE 6430.1A, "General Design Criteria." The CHPRC Contract with DOE identifies the DOE Directives and Orders that must be complied with. The "code of record" does not apply to DOE Directives and Orders. As an example, the SWOC FHA needs to remove references to DOE O6430.1A and DOE O 5480.7A and replace them with the requirements of DOE STD 1066-99, as required under SCR D O 420.1B. Another example is the references in the SWOC MSDA, Chapter 11, to the out-of-date DOE-RLID 420.1, *Fire Protection*, which has been replaced by SCR D O420.1B.

There are other codes such as the International Building Code (IBC) and International Fire Code (IFC) and UFC that establish similar code requirements in their text and are applicable to the extent defined in DOE Directives for each code. The IFC, which is applicable to ignitable or reactive waste storage operations, as required by SCR D O 420.1B and WAC 173-303, is not referenced in the SWOC FHA. Instead it uses an out of date UFC reference for this type of storage.

Another example is PRC-PRO-EN-8258, Functional Design Criteria, where references are still made to the Uniform Building Code, which has been replaced by the International Building Code. Chapter II, Section 3.a.3 of the DOE O 420.1B states that fire protection for DOE facilities will "meet or exceed applicable building codes for the region and NFPA codes". SCR D O 420.1B further clarifies that "New facilities and facility modifications must conform to the fire resistance requirements, allowable floor area, building height limitations, and building separations of the International Building Code (IBC)."

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment: No self-assessment of this work activity was been performed by the contractor.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

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

NOV 23 2009

10-OOD-0005

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

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF SURVEILLANCE REPORT
S-09-OOD-RCP-004, WORK CONTROL

During the last two weeks of September, RL conducted oversight of WCH work control and the progress of corrective actions related to the Building 336 Type B accident investigation. The oversight identified that additional management attention on work planning, hazard identification, and working within controls, will be necessary to ensure the ongoing corrective actions are fully effective. The surveillance resulted in the identification of five Findings, four Observations, and one Good Practice.

In addition to this surveillance, WCH has had additional industrial work related events/issues that when taken with the issues identified in this surveillance (F01 and F05) raise concerns with the adequacy of WCH actions to improve the rigor of hazards analysis and associated work instructions to support a strong safety culture. Three additional recent examples include:

1. In mid-September a laborer burnt his hand while disconnecting a hose from a pump at the end of the shift. There was recognition of the hazard, but the hazard and associated control was not reflected in the Job Hazards Analysis or Task Instructions (OA25860).
2. On October 23, following the pre-job it was determined that the 100-N microwave tower demolition Job Hazards Analysis and Task Instructions failed to include structural engineer controls to cut the cross bracing on the north side of the tower (OA26713).
3. On November 3, during disassembly of an excavator the shear attachment was removed and placed on cribbing. The lifting harness was moved to adjust the shear per "skill of the craft," but while it was lifted a couple of inches off the cribbing, the load shifted and fell on its side on the ground. The WCH Senior Supervisory Watch was contacted and the shear restored per verbal direction with no additional instructions prior to adequate investigation or evaluation of the event (OA26884).

You are directed to process the attached surveillance report through the WCH established corrective action management system and provide a corrective action plan in accordance with SCRD 470.2B (Supp. Rev. 2) for issues associated with Finding 04 and the collective evaluation of the two issues above with Findings 01 and 05 of the attached surveillance report. RL retains closure authority for the findings as identified in the attached surveillance.

Mr. M. N. Brosee
10-OOD-0005

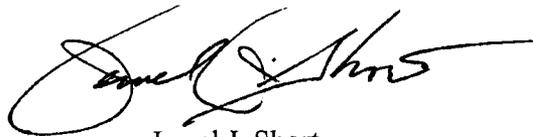
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NOV 23 2009

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,



Jewel J. Short
Contracting Officer

OOD:JJW

Attachment

cc w/attach:

C. P Ames, WCH
J. F. Armatrout, WCH
B. C. Covert, WCH
R. A. Dodd, WCH
S. L Feaster, WCH
T. A. Foster, WCH

T. H. Harris, WCH
W. F. Johnson, WCH
R. J. Skwarek, WCH
B. D. Smith, WCH
M. F. Tavelli, WCH

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

Division: Operations Oversight Division

Surveillant: J. Allen, J. George, M. Hiatt, D. Humphreys, R. M. Irwin, J. Waring

Surveillance Number: S-09-OOD-RCP-004

Date Completed: October 2, 2009

Contractor: Washington Closure Hanford LLC (WCH)

Facility: 100N and 300 D4

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 corrective actions from the recent Building 336 Type B accident investigation were evaluated during the oversight. The focus of this oversight was 100N and 300 Area D4.

Surveillance Summary:

The FRs performed oversight of WCH work planning, hazards analysis, and performance of work in the field per established controls.

Five findings, four observations, and one good practice resulted from this surveillance:

- **S-09-OOD-RCP-004-F01** - The work package for removal of the boom from a crane at 100D did not include the approach used to remove a cotter pin.
- **S-09-OOD-RCP-004-F02** - 100D Legacy crane work performed without adequate hazards analysis put workers into position for potential injury.

- **S-09-OOD-RCP-004-F03** - Craft work package for Deactivation & Decommissioning of legacy crane at 100D did not comply with Job Hazards Analysis (JHA) procedure to perform a walkdown.
- **S-09-OOD-RCP-004-F04** - Sections of SEM-3-2.2, "Event Management" do not provide adequate direction to ensure full investigation and corrective action development for abnormal events.
- **S-09-OOD-RCP-004-F05** - Multiple instances of failure to comply with excavation controls were noted.
- **S-09-OOD-RCP-004-O01** - Integrated Work Control Process (IWCP) Revision 5 implementation is causing confusion in field.
- **S-09-OOD-RCP-004-O02** - Multiple opportunities to improve the performance of JHA planning meetings were noted.
- **S-09-OOD-RCP-004-O03** - Some self-identified work control issues are not clearly resolved in WCH corrective action management database.
- **S-09-OOD-RCP-004-O04** - WCH expectations for implementation of JHA hold point requirements are not well understood across WCH staff.
- **Good Practice** - Implementation of the Senior Supervisory Watch (SSW) at 100N appears to be effective and useful.

RL lead assessor closure will be requested for the five findings. RL will also request a Corrective Action Plan for finding 04, recognizing WCH is continuing to complete the Type B corrective actions, and any additional actions necessary to ensure effectiveness of the hazards analysis and work control processes.

Surveillance Results:

Finding: S-09-OOD-RCP-004-F01

The work package for removal of the boom from a crane at 100D did not include the approach used to remove a cotter pin. (OA25953)

Requirement:

PAS-2-1.1 "Integrated Work Control", Paragraph 5.0, states "Routine work shall not be performed as a means of adding scope or activities to a Work Package."

Discussion:

FR observed removal of the boom from a legacy crane at 100D by 100N personnel. Workscope observed by the FR included starting the crane, lowering the mast for removal of the pin that attaches the cable to the mast, lowering of the mast and boom to grade, disassembly of the boom from the crane, attachment of the boom to the mast, and operational testing of the steering mechanisms of the crane. The boom is connected to the mast of the crane via pendant cables. The pendant cabling is made up of approximately 8' long sections of steel cable. The pendant cable is attached to the mast

with a steel pin, which is held in place with a large cotter pin. During disassembly of the crane, one of the cotter pins became stuck and could not be removed with a hammer.

The Field Work Supervisor (FWS) directed a crew member to obtain a sawzall so that the cotter pin could be cut in order to ease removal. The FR went to an adjacent worksite to inquire about work that 100D personnel were performing. When the FR looked back at the crane disassembly work, the crew had set up a new method to remove the cotter pin. The cotter pin was positioned so that a piece of steel could be fed between a hole in the boom and the cotter pin (which is attached to the mast). The crane operator then lifted the mast until the cotter pin came out. Three personnel were standing immediately adjacent to the cotter pin. The act of lifting the mast introduced stored energy into the system. When the cotter pin released, the 8' section of pendant cabling that was attached to the mast jumped up from its stored location on top of the boom. The cabling fell over the boom and bounced off the wood work platform and came to rest on the ground. No personnel were contacted by the cable.

The FR questioned the FWS about the use of the mast as a tool for cotter pin removal and whether that was covered by the JHA or work package. The FWS indicated that dismantling of the crane was performed under the crane/rigging craft work package. The FR asked to see the rigging work package and was told that it wasn't on site. The FR reviewed the rigging work package on September 18, and did not find any evidence that the work package covered disassembly of the crane. In addition, the last status entry in the package was dated September 2, 2009, indicating that the work package was not being used for the evolution observed. The FR also reviewed the craft work package for disposition of the crane and did not find any evidence of hazard analysis being performed and hazard controls being implemented for the way in which the cotter pin was removed.

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

Finding: S-09-OOD-RCP-004-F02

100D Legacy crane work performed without adequate hazards analysis put workers into position for potential injury. (OA25953)

Requirement:

WCH-4 "Integrated Environment, Safety, and Health Management System Description" paragraph 5.2 states: "During the JHA process hazards are identified, analyzed and a control method specified on an activity level specific to the work being performed." paragraph 6.0 states: "Emergent hazards or conditions identified outside of existing controls may necessitate revisions to existing project documents, including the JHA and work document."

WCH PAS-2-1.4, "Job Hazard and What-If Analysis" paragraph 5.0 states, in part: "The JHA must be as rigorous as necessary to identify and mitigate all known hazards to the work team, others, property, and the environment."

Discussion:

In contrast with the requirements above, no hazards analysis was implemented and/or hazard controls documented or utilized for the removal of the stuck cotter pin (see F01 discussion) using the crane's mast. Use of the crane's mast introduces large amounts of stored energy into the cotter pin which can be transferred to the pin or other equipment without warning and create projectiles or cable whip. Three personnel were positioned in the immediate vicinity of the pendant cable and exposed to the hazard when the cotter pin gave way. If more energy had been required to remove the cotter pin, the consequences of this act may easily have been more severe and caused injury to the personnel.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-004-F03

Craft work package for Deactivation & Decommissioning of legacy crane at 100D did not comply with Job Hazards Analysis (JHA) procedure to perform a walkdown or insert a Hold Point if the work area is not accessible during the JHA. (OA25857)

Requirement:

PAS-2-1.4, Rev. 0, Job Hazard and What if Analysis, Paragraph 6.2.1 states, "The Planner/Facilitator recommends to the RM/Manager whether a walkdown or a tabletop discussion is appropriate.

- A walkdown is always the preferred method.
- A tabletop may be selected by the RM if the entire Planning Team has recent knowledge of the entire work area.
- If a walkdown is selected, it is to include all areas where work will be conducted unless waived by the RM. If an area is inaccessible, the RM shall be notified.
- A tabletop may be used if the risk from work site hazards outweighs the benefit from the team walking the site but other information (e.g., video, photographs, drawings, etc.) shall be used or obtained to support the tabletop.
- A tabletop discussion performed in lieu of a walkdown requires RM/Manager approval. The RM/Manager approval of the JHA is sufficient documentation."

PAS-2-1.1 Rev.5, Integrate Work Control Program, Paragraph 6.4.3 states:

"If a portion of the work area is not accessible during the JHA, (e.g., area not accessible during the walkdown) a HOLD POINT shall be placed in the Work Package so that work cannot proceed in the inaccessible area. When the area becomes accessible, verification of the scope and an analysis of the hazards shall be conducted, the JHA and Work Package updated as required, and the HOLD POINT satisfied and signed"

Attachment 1, Paragraph 1.0 states:

"Craft Work Packages shall not contain sequential steps, hold points, sign offs, etc. If

step-by-step instruction must be given to the worker to ensure proper performance of the job, then a CWP is not appropriate for the task."

Discussion:

In contrast to the cited above, discussion with the work planner for this activity indicated that no hold point was put in the work package even though no walkdown of the engine compartment of the crane had been performed. The crane's engine compartment was not accessed during JHA development due to its posting as a contamination area. The procedural Hold Point requirement cited above does not differentiate between craft work packages and Type 1 work packages. The FR notes that the work package was not available for review at the time of discussion. In addition, it was noted that during the JHA that a drive-by of the crane was an adequate walk down for the activity.

RL Lead Assessor Closure Required: YES NO

Finding: S-09-OOD-RCP-004-F04

Sections of SEM-3-2.2, "Event Management" do not provide adequate direction to ensure full investigation and corrective action development for abnormal events. (OA26460)

Requirement:

DOE O 5480.19, CH VI, Abnormal Event, states "A program for the investigation of abnormal events should ensure that facility events are thoroughly investigated to assess the impact of the event, to determine the root cause of the event ... and to identify corrective actions to prevent recurrence of the event."

DOE 5480.19 Ch. VI paragraph c.6 states "The report should include a description of the event, a discussion of the impact of the event, root cause, the lessons learned, and the proposed corrective actions."

DOE 5480.19, Ch. VI, paragraph 5.a "It is desirable to include the personnel involved in the event in the reconstruction process."

DOE 5480.19 Ch. VI, c.4.b states "Statement of operators and personnel involved in the event (this should be permanently recorded)" Further, paragraph c.4 also states, "The event investigation-containing relevant information should be permanently recorded for future reference."

DOE 5480.19 CH. VI paragraph 4 describes information to be gathered to perform reconstruction and analysis of an event, which includes witness statements. Paragraph 5 states in part, "Upon completion of the data collection, a structured review of the abnormal event should occur." Paragraph 5.a. states in part, "The abnormal event should be reconstructed using the collected information."

Discussion:

The FRs reviewed the changes (Rev.6) to WCH procedure SEM-3-2.2 "Event Management" that were made in response to the Judgement of Need (JON) for the Type "B" accident investigation. In addition, the FRs reviewed WCH procedures QA-1-1.2 "Corrective Action Management," QA-1-1.4 "Quality Assurance," and SEM-3-1.2 "Occurrence Categorization and Reporting." Based on these reviews, the Event Management process does not adequately meet the requirements of DOE 5480.19 "Conduct of Operations Requirements for DOE Facilities" or DOE-M-231.1-2 "Occurrence Reporting and Processing of Operations Information" to investigate and gather the facts and associated causal factors for events as required by these requirements as discussed in greater detail below.

The wording of SEM-3-2.2 is flexible enough so that it does not require adequate investigation of abnormal events and does not set adequate management expectation on event investigation and corrective action development. Specific examples and discussion are provided as follows:

Paragraph 3.0 fact finding definition: "A fact finding is used in a grade approach as a tool for initial investigations and may include a secondary meeting to discuss post event actions such but not limited to return to work actions and corrective actions." This wording is ambiguous and doesn't force any type of investigation beyond determination of facts. DOE 5480.19 Ch. VI, section B states in part: "The abnormal event investigation program is needed to ... ensure appropriate corrective action steps are established to minimize the chance of the event recurring." It is unclear to the FRs how this requirement can be met if a fact finding "may include" a meeting to discuss corrective actions. If the intent is to allow for workers to leave after facts have been determined and not be involved in corrective action development, then the wording should be changed to ensure that it is clear that corrective actions are required.

Paragraph 5.0 states "In the case of fact findings for incidents that are considered of low severity by project management. The facilitator may close the meeting without addressing any further follow on actions, because it is apparent to management that few or no further follow up actions are needed and no further investigation is required. If project management considers an incident to be of greater severity and it has negative consequences associated with it. The facilitator may conclude the fact finding after the circumstances of the incident are understood. The facilitator may then relay management's expectation that a secondary meeting of selected people will be scheduled. At the secondary meeting management may determine the apparent cause(s) of the incident, discuss the type of compensatory actions the project will pursue, and if additional investigation should be applied to the incident." The FRs are unsure what circumstances would allow for management to stop a fact finding and not fulfill the requirements of 5480.19 Ch.VI, paragraph V for causal analysis and corrective action development. In addition, the use of words such as "may conclude," "may then relay", and "may determine" leave the process ambiguous and do not require full investigation of events.

Paragraph 6.1.5 states "If an investigation is determined not to be warranted" and Attachment 3 states "If an investigation has progressed from the fact finding meeting or formal accident investigation team stage and facts indicate that continuing the fact finding or team investigation is no longer required, the P/FD may discontinue the investigation and document the decision with justification in the fact finding report." It is unclear what criteria would be used to determine that an investigation of an abnormal event would no longer be needed. Although Attachment 3 gives guidance for the minimum level of investigation, but it is recognized to not be all inclusive. DOE 5480.19 states in part, "A program for the investigation of abnormal events should ensure that facility events are thoroughly investigated to assess the impact of the event, to determine the root cause of the event ... and to identify corrective actions to prevent recurrence of the event." More guidance and justification of when to stop an already started investigation is needed to ensure that this procedure is in compliance with DOE 5480.19.

Paragraph 6.2.4 does not list event witnesses or people involved in the event as required attendees. It is unsatisfactory to conduct a fact finding without the people involved or witness to the event.

Paragraph 6.2.3.b states "Interview involved persons to gain a general understanding of the event. Obtain witness statements as appropriate." It is unclear when witness statements would not be appropriate.

Paragraph 6.2.3 states "the fact finding facilitator should perform the following activities prior to the meeting." One of the items listed is to obtain witness statements. During the fact finding at 100N for legacy crane disassembly, these witness statements were not taken before the fact finding. When questioned by the D4 manager, the event management procedure author stated that it wasn't required to be done prior to the meeting. The WCH event management procedure and this statement by the event management procedure author are in contrast to requirements. 5480.19 requirements imply that collection of witness statements must be done prior to starting event reconstruction, which for WCH purposes would be the fact finding meeting. In addition, a more thorough event reconstruction can be obtained from witness statements that are immediately written down since it precludes witness' stories from melding through discussion, which could cause the loss of important facts.

Reviews of other WCH procedures that are used during event investigation (i.e., SEM-3-2.1, etc.) have not been updated to reflect current language of SEM-3-2.2 "Event Investigation," Rev. 5. An event investigation from event through corrective actions is required per DOE 5480.19. In order to accomplish this, WCH has written several procedures to cover various aspects of this process. The procedures contain duplicative information which makes it difficult to know which procedure one should be in when performing different aspects of event investigation and corrective action development. It would be more beneficial for all of the procedures involved to be changed at one time to allow for consistency across the procedures. In addition, all of the procedures involved do not adequately cross reference to ensure that the proper procedure is utilized when performing a part of event investigation. For instance, SEM-3-2.1 paragraph 6.2.7 states "Project management may choose to have a secondary meeting of selected individuals to discuss cause(s), develop compensatory action, corrective actions, and determine if

further investigation is required.” It would be clearer if the procedure pointed to QA-1-1.2 “Corrective Action Management” and QA-1-1.4 “Causal Analysis” for the actual performance of corrective action determination.

Note to paragraph 6.3.3 states “If a formal Root Cause Analysis will be performed...” It is unclear when an Accident Investigation Team would be convened and a Root Cause Analysis would not be required. QA-1-1.4 criteria would appear to make the Issue Form (IF) be screened as Significant if an Accident Investigation Team would be convened. QA-1-1.4 would then require Root Cause Analysis.

Paragraph 6.2.5.d states “the intent of the meeting is to determine the facts before, during, and immediately after the event.” Paragraph 6.2.5.d also states “...causative factors will be identified and discussed” and 6.2.6 states “return to work actions will be discussed prior to ending the meeting.” The second two statements are outside of the expressed purpose of the fact finding. If the intent is to discuss causes and immediate corrective actions, then the intent of the meeting statement should be revised to reflect that the fact finding is more than just determining the facts of the event.

The number of discrepancies within the procedure coupled with the issues identified by the Type B accident investigation and recent event investigations (e.g., 300 Area excavation investigation) indicate the procedure is not adequate. The lack of clear criteria for when an investigation is required and the failure to identify the minimum content that must be determined to support an adequate investigation do not support strict adherence to the abnormal event investigation requirements referenced above.

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

Finding: S-09-OOD-RCP-004-F05

Multiple instances of failure to comply with excavation controls were noted. (OA25831)

Requirement:

OSHA CFR 1926.652(b)(1)(i): Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below. OSHA 1926.652(b)(1)(ii) continues by stating, Slopes specified in paragraph (b)(1)(i) of this section, shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B to this subpart. All Hanford soil is classified as type 3 soil.

Discussion:

During a general walk down on September 14, the General Support Services Contractor observed the excavation of lift station #12 by a WCH subcontractor. The excavation was approximately 10 ft. deep with shear edges on the West side of the excavation. The surveillant observed the subcontractor in the bottom of the excavation trying to identify

the tie-in point to sewer man-hole. The WCH work supervisor told the subcontractor's employee to exit the excavation until the excavation could be made safe. The subcontractor employee came out of the deep portion of the excavation and started to instruct the operator to slope the excavation back. This was the second time in a month (August 25, OA27370) where the same supervisor and subcontractor were observed in noncompliance with these requirements.

Subsequent WCH investigation and discussion with WCH management indicated a clear understanding of the severity of the noncompliance. Verbal discussion of planned corrective actions appear to be aligned with the significance of the issue.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-004-O01

Integrated Work Control Process (IWCP) Revision 5 implementation is causing confusion in the field. (OA26293)

Discussion:

During the 338 building pre-evolution brief, the supervisor specifically discussed that the critical resources for the job were the supervisor and the Hoisting & Rigging (H&R) Subject Matter Expert (SME) during lifting of the panels. When the FR asked how the critical resources were documented, the supervisor indicated that he was working to a Rev. 4 IWCP package and that critical resources were being addressed daily at the Plan of the Day and during briefings. The FR asked for clarification on critical resources for this task and when the supervisor answered, he was corrected by the H&R SME who stated that he was only critical for the first few lifts until they were satisfied the work could be performed safely. Rev. 5 would require critical resources be identified in the JHA, but this information is not included in the Rev. 4 documentation. The package had received a Senior Management Review Board review prior to restarting work, but the Rev. 5 attributes (communications, critical resources, etc.) were not addressed and it has not been documented anywhere else.

OA25857 provides an additional example where walk down requirements and how they apply to a craft package, is causing confusion. Following the fact finding meeting for this event, the D4 director is considering an action to retrain D4 supervisors to reinforce the expectations for Revision 5 implementation. Although this is a good action, it is likely this is an action that should not be limited to the D4 project.

OA25860 provides an example of where a hazard (hot water) was known, but not addressed in the JHA and a non-documented control was instituted to address the hazard. This behavior is one that was targeted by the WCH Corrective Action Plan (CAP). (OA25860)

Finally, FRs discussed Rev. 5 with numerous WCH personnel with significant confusion expressed. Personnel appear to expect things will improve with more time implementing Revision 5 and as work planned per Revision 4 is completed. WCH issued a "Heads Up Planners" on September 24, to clarify the interpretation of Critical Resource implementation. Additional discussion and efforts are underway within WCH.

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

Observation: S-09-OOD-RCP-004-O02

Multiple opportunities to improve the performance of JHA planning meetings were noted. (OA26156, 26247)

Discussion:

The 618-10 JHA meeting on September 28, for Cone Penetrometer work walked through expected hazards and associated controls, but no overall discussion of the work steps was performed. This was based upon discussions that a mock-up had been previously performed, but it was obvious not all personnel in attendance were familiar with the mock-up activities. Good attendance of appropriate personnel was observed and there was adequate discussion of hazards and associated controls. The meeting could have been improved through the use of the following:

1. Overall discussion of the steps and routine drill rig operation.
2. Use of some pictures of the drill rig and/or mock-up to reinforce what was learned from the mock-up.
3. Use copy of the Health and Safety Plan (HASP) to support discussion of existing hazards and controls that are addressed by the HASP.
4. It was not clear if the Job Hazards ID worksheet was used and there was no apparent discussion of critical resources.

A second JHA was observed for Craft Work Package FRK 09 08 27 004 - Perform activities required to support decontamination of equipment, tools, materials, and vehicles. Based on information provided at the JHA, this work package is for both Rad Con and Industrial Hygiene (IH) Decontamination. The required representatives were present and the JHA was being led by the planner that developed the package. The JHA was being conducted per the requirements of PAS-2-1-4 (Job Hazard and What if Analysis) and PAS-2-1.1 (Integrated Work Control). The draft of the Craft Work Package was provided to all attendees along with a copy of the draft JHA. Good interaction and involvement of all parties involved. The detailed work scope section of the work package was blank. Comments provided by the planning team resulted in the deletion of a large number of items associated with 1) Precautions/Limitations, Comments and/or Special Tools/Equipment and Additional Guidance Section 1.0 General, and Section 2.0 Demobilization Decontamination. In addition, the Detailed Work Scope section was blank. The FR raised the question regarding the reason for the JHA with the modifications that were made to the draft instructions. Other individuals at the JHA raised similar questions. As a result, the planner stopped the JHA session and

tabled the package pending resolution to the issue of work package content. A JHA had been supplied but it would have been difficult to evaluate the adequacy since the work package was lacking in details regarding the activities associated with decontamination. The planner intends to work with Rad Con and IH to develop sufficient wording in the package to enable the efficient hazard analysis and establishment of the necessary controls. This was a preliminary JHA for this activity and no specific compliance issues were identified. However, the lack of details regarding the specific contamination activities associated with the package prohibited the determination of the hazards involved and the identification of the required controls

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-004-O03

Some self-identified work control issues are not clearly resolved in WCH corrective action management database. (OA26368)

Discussion:

D4-2009-SA-011, Procedure use and adherence, was issued on August 6, documenting two issues. Although the level of investigation of the procedure was adequate, it is unclear to the FR how items identified were categorized and resolved. Block 9 of the surveillance report requires documentation of any IF that are written based on the surveillance. This was not accomplished; however, a reference to IF's being written was made. The FR was able to track down the IF's generated; IF-2009-0345 and IF-2009-0344.

IF-2009-0345 was written to issue #1 of the surveillance, which stated "Work package scope development can be improved." The surveillance describes four instances where the scope of work packages were inadequately defined. IF-2009-0345 was screened out due to corrective actions being developed for the type "B" accident investigation per IF-2009-0283. Although the Type "B" accident investigation IF's that were developed as part of WCH's CAP address the improvement of scope development, they do not address the four specific instances cited in the surveillance and IF-2009-0345. It is unclear to the FR how these four specific problems were resolved, if at all.

IF-2009-0344 was written to issue #2 of the surveillance, which stated "The requirements associated with the release and control of work packages can be improved." The surveillance describes seven instances where the release and control of work packages was inadequate. This IF was also screened out in relation to the Type "B" accident investigation. The only IF that could be found regarding the correction of deficiencies of work release was IF-2009-0357. The corrective actions for -0357 describe changing a BLDG 324 specific D4 procedure to correct a work release problem. This corrective action from the CAP does not appear to address the identified deficiency of item #2. Also, the seven specific instances described in the surveillance and IF are not addressed in any IF and it is unclear if they were resolved. Finally, instances five and six appear to

be a failure to follow procedure requirements, not release and control of work package problems.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-004-004

WCH expectations for implementation of JHA hold point requirements are not well understood across WCH staff. (OA25857)

Discussion:

Requirements 2 and 3 cited in Finding 03 above are contradictory. The JHA hold point requirement is in place to ensure that an adequate review of the work area has been done and that work conditions are as expected and documented in the JHA prior to work commencing. Requirement 3 does not allow for implementation of Requirement 2 in craft work packages. RL has discussed this issue with WCH management and there was disagreement on what the minimum expectations are regarding performance of walk downs and the associated hold point, when necessary. It is clear that the expectations for implementation of these requirements are not well understood across WCH staff.

RL Lead Assessor Closure Required: YES NO

Good Practices: Implementation of the Senior Supervisory Watch (SSW) at 100N appears to be effective and useful. (OA26207)

Discussion:

SSW of 100N D4/ISS activities was initiated on September 23, 2009. The FR observed SSW interaction at 100N on September 28, 2009, and reviewed the SSW logbook entries. On September 28, the FR observed the SSW lead at the 107N pre-ev identify two issues, which were resolved following his involvement. In the SSW logbook, the FR noted the IWCP Program Administrator had reviewed the WM Dickson work packages on September 23, identified several issues, and subsequently 100N management suspended work on two of the work packages. Based on early data points, it appears implementation of the SSW at 100N has been effective and useful. The SSW not only provides senior management perspective and expectations to the workers in the field, but also allows workers to communicate issues or challenges to senior management. In addition, the SSW preparation and monitoring expectations outlined in Standing Order SO-D4-2009, Rev 0, improves the usefulness of management oversight in the field. (OA26207)

Contractor Self-Assessment:

The FR reviewed the following WCH surveillance reports, WCH Management Assessments, WCH Independent Assessments, and WCH Self-Assessment Reports:

- D4-2009-S-011, Procedure Use and Adherence
- D4-2009-SA-003, Work Control
- IWCP-2009-SA-002, Integrated Work Control Quarterly Assessment
- MA-2009-008, Conduct of Operations Quarterly Roll-up Assessment, Q2-FY2009
- PS-2009-SA-012, Facility Services IWC Programmatic Implementation
- QA&S-2009-003, Special Processes
- QA&S-2009-004, Measuring and Test Equipment
- QA&S-2009-S-015, Work Processes (Conduct of Operations)

In general, the reviewed documents reflected an adequate level of breadth and depth to the various surveillance and assessment processes. Not all reports were directly related to WCH work control implementation, although each contained related lines of inquiry. The review did indicate that terminology is not being consistently used/defined across the various procedures that cover assessment and surveillance activities for WCH. Furthermore, adequate documentation of actions taken is not always complete. See O03 above for an observation related to resolution of work control issues.

WCH is currently in the process of developing their Integrated Evaluation Plan for FY2010 and it is known that two effectiveness assessments for the Type B corrective actions will be performed to evaluate the effectiveness of JHA and work control corrective actions. Furthermore, a WCH action to evaluate their overall Feedback and Improvement processes is ongoing as an action to the Type B CAP. Considering these factors, the WCH self-assessment of work control is adequate.

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

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