



U.S. Department of Energy

~~OFFICE OF RIVER PROTECTION~~

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

NOV 27 2007

07-TOD-115

Mr. John C. Fulton, President  
and Chief Executive Officer  
CH2M HILL Hanford Group, Inc.  
2440 Stevens Center Place  
Richland, Washington 99354

Dear Mr. Fulton:

CONTRACT NO. DE-AC27-99RL14047 – U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION (ORP) ASSESSMENT OF TANK FARM PROJECT (TFP) OPERATIONS, OCTOBER 2007

The ORP TFP Facility Representatives (FRs) and Technical Staff conducted evaluations of the Tank Farm and 222-S Laboratory operations and activities during October 2007. The attached report documents the results of the evaluations. The FRs focused their October reviews on Conduct of Operations and Radiological Work Practices. Some improvement has been noted in the area of Radiological Controls. The Radiological Control first line supervisors assigned to high risk activities are doing a good job of setting expectations and enforcing requirements. ORP encourages this improving trend. Field performance problems in the area of Conduct of Operations indicated inadequate implementation of existing requirements and inattention to detail. This level of performance does not meet expectations. Direct, continuous management involvement is needed to communicate and enforce expectations with the workforce. Because of the issues found during October, the FRs will continue to observe performance in Conduct of Operations and Radiological Controls.

If you have any questions, please contact me, or you may contact Mark C. Brown, Director, Tank Farm Operations Division, (509) 373-9150.

Sincerely,

Delmar L. Noyes, Acting Assistant Manager  
for Tank Farms

TOD:MCB

Attachment

cc: See Page 2

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Mr. John. C. Fulton  
07-TOD-115

-2-

cc w/attach:

E. J. Adams, CH2M HILL  
C. E. Anderson, CH2M HILL  
J. J. Badden, CH2M HILL  
T. E. Bratvold, CH2M HILL  
R. A. Dodd, CH2M HILL  
G. N. Hanson, CH2M HILL  
D. B. Hardy, CH2M HILL  
M. D. Hasty, CH2M HILL  
R. L. Higgins, CH2M HILL  
T. L. Hissong, CH2M HILL

J. W. Long, CH2M HILL  
M. R. Kembel, CH2M HILL  
J. A. McDonald, Jr., CH2M HILL  
R. S. Popielarczyk, CH2M HILL  
W. E. Ross, CH2M HILL  
CH2M Correspondence Control  
K. T. Juroff, EM-22  
R. G. Quirk, DNFSB

# Office of River Protection

THE U.S. DEPARTMENT OF ENERGY (DOE),  
OFFICE OF RIVER PROTECTION (ORP)  
ASSESSMENT OF TANK FARM PROJECT (TFP) OPERATIONS,  
OCTOBER 2007  
A-08-AMTF-TANKFARM-001

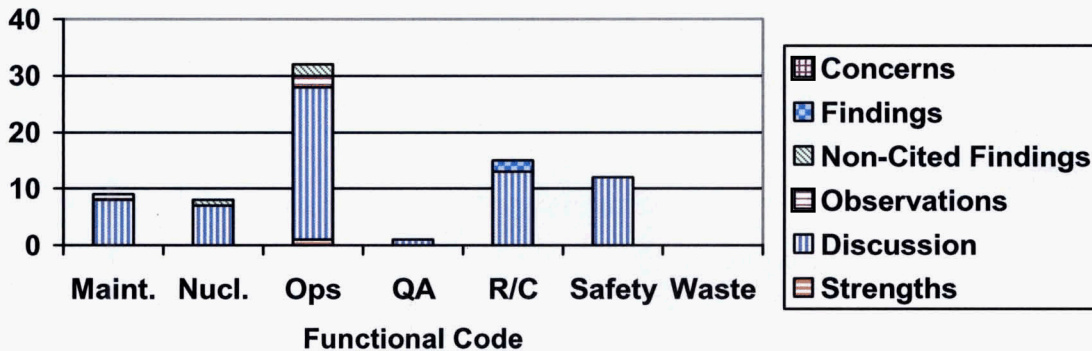
## I. Introduction/Summary

During the month of October 2007, the U.S. Department of Energy (DOE), Office of River Protection (ORP) Facility Representative (FR) and technical staff reviewed maintenance and operations at the Tank Farms (TF) and 222-S Laboratory. For this reporting period, 80 entries were made in the Operational Awareness (OA) database. The graph below groups the entries by functional area; since some entries cover more than one functional area they may be represented in the graph more than once. Five Strengths, no Concerns, two Findings, seven Non-Cited Findings, seven Non-Cited Findings and nine Observations were noted during the month. The Strengths, Findings, Non-Cited Findings and Observations are detailed in Section V of this report.

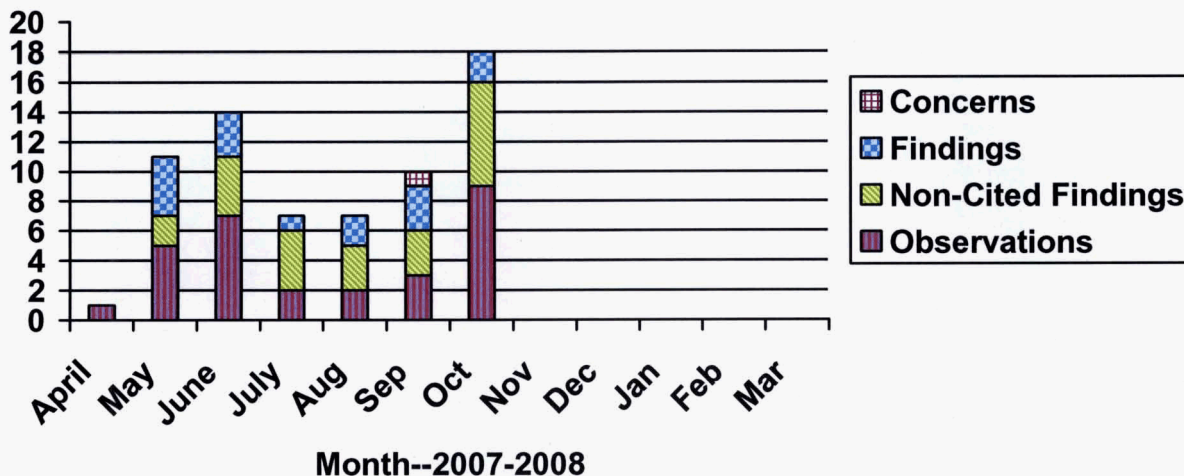
The focus areas for the month were Conduct of Operations and Radiological Controls. Due to the issues identified in this report, the FRs will continue to monitor performance in Conduct of Operations and Radiological Controls.

This report includes data from the oversight of S-102 recovery actions and uses it in the overall assessment of contractor operations. It does not, however, provide a detailed analysis of the S-102 recovery; that will be performed by a separate document.

**Number of OA Entries by Category**



## Number of Deficiencies by Type



## II. Analysis and Discussion

In October 2007, the ORP FR and technical staff performed 30 surveillances in areas that included Conduct of Operations, Radiological Control Practices, Operations, Maintenance, Nuclear Safety, Integrated Safety Management, Training, and Industrial Safety.

While this report does include data from the oversight of S-102 recovery actions and uses it in the overall assessment of contractor operations, it does not use that data to provide a detailed analysis of the S-102 recovery; that will be done in a separate document.

The FRs conducted field oversight and program reviews during the month. Some of the key activities observed included:

- Performed a surveillance on equipment labeling (S-08-AMTF-TANKFARM-001);
- Performed a surveillance on change trailer conditions (S-08-AMTF-TANKFARM-002);
- Attended pre-job and observed field activities for investigative survey for a possible SX Sludge Cooler Condensate Line leak;
- Attended the contractor’s Safety Focus Workshop for C-Farm;
- Attended pre-job brief and conducted field oversight of A-TF Flammable Gas monitoring;
- Attended pre-job and observed electrical maintenance at T Farm;
- Observed status in S and C Farm;
- Observed Safety Focus Meeting for Operators;
- Observed Fact-Finding meeting for cart blowing off the roof of building 2704HV;
- Observed safety stand down meetings involving environmental and safety personnel;
- Observed ventilation system belt, bearing and shaft work in AN Farm;

- Observed A Train exhauster work in AN Farm;
- Walked down T Farm interim barrier construction site;
- Walked down 242-A Antifoam injection system;
- Observed the response for AOP-011 for liquid found on the floor underneath a waste bag in the 242-A airlock;
- Followed up on report of dripping liquid from the SX sludge cooler condensate line;
- Read work package and observed pre-job for replacement of belt, bearings and shaft on A-Train exhauster in AN Farm; and
- Conducted field oversight of the C-103 ENRAF inspection/calibration, CLO-WO-07-1220.

### III. Injuries and Occurrences

During the month of October 2007, there were no lost work day cases. The latest recordable and lost work day injury occurred on August 2, 2007.

There were two occurrence reports issued during the month of October 2007:

- **A Plastic Utility Cart falls from the roof of the two-story 2704-HV Building (EM-RP-CHG-TANKFARM-2007-0012).** On October 2, 2007, between approximately 3:30 pm and 5:00 pm, a cart used for roof maintenance activities at 2704-HV was blown off the roof and landed near an established smoking area for that building. Very few personnel were in the 2704-HV building during this period due to a CH2M HILL Hanford Group, Inc. (CH2M HILL) all employee meeting at another location. No personnel were injured and no personnel were in the area where the cart landed. This was categorized as Group 10(3) SC-3, "Near Miss."
- **Four Closure Operations Non-Reportable Lockout/Tagout Related Issues Represent Management Concern (EM-RP--CHG-TANKFARM-2007-0013).** Within four weeks there have been four Lockout/Tagout related issues in Tank Farm Contractor (TFC) Closure Operations (CO) group. These are documented in the company's Problem Evaluation Report (PER) system and being addressed individually (PERs: 2007-1632, 2007-1633, 2007-1634, 2007-1800). None of these issues met occurrence reporting thresholds of *Subgroup C – Hazardous Energy Control*. This report is issued to facilitate additional casual analysis to determine if subsequent corrective actions are warranted. Categorized as 10(2) SC-4, "Management Concern".

### IV. Monthly Focus Review for October: Conduct of Operations and Radiological Control Practices

In July 2007, ORP FRs observed a negative performance trend in radiological work practices and in Conduct of Operations. As a result, increased emphasis was placed on oversight in these areas in August, September, and October 2007.

During the month of October, the FRs conducted numerous surveillances of the TFC Conduct of Operations and Radiological Control Practices. The FRs used a performance-based approach to assess procedural compliance, work planning, adequacy of field work, feedback, and training. By the end of October, there was indication that continued focus in these areas was warranted.

### Scope:

The FRs performed numerous activities, as outlined below, to evaluate the performance of Conduct of Operations and Radiological Control Practices.

### Results:

#### **Conduct of Operations**

Conduct of Operations was evaluated during work activities and operations during the month of October. Observed field operations and activities included, but were not limited to the following:

- Attended U-361 pre-job for the removal of drill string from riser #5;
- Attended the JRG for B-102, Replace ENRAF Drum and Displacer;
- Attended JRG for S-102 Equipment disposal;
- Attended the TPM – Clean out the pit at CR-Vault;
- Investigated the failure of an SY pressurization alarm;
- Observed and participated in S-102 Table Top Drill;
- Inspected admin locks in 242-S, A-271, and A and AX TFs;
- Attended Fact-Finding for S-102 high pressure line removal procedural deviation;
- Investigated alarm deactivation prevention controls;
- Monitored evaporator excavation work area for the K1 ventilation supply upgrade project;
- Attended Fact-Finding for Water Release inside C-Farm;
- Attended pre-job for CLO-WO-07-1137 – Remove ventilation ducting on C-200 system;
- Attended pre-job for CLO-WO-07-1161 – Check/Torque Bolts on POR-008 Exhauster;
- Attended HAZOP for the C-104 Ventilation system;
- Performed a surveillance on change trailer conditions (S-08-AMTF-TANKFARM-001-N02);
- Observed Pre-Job Briefing for CLO-WO07-1545, “*S-102, Remove and Dispose of Equipment Outside of the High Radiation Area (HRA);*”
- Observed Pre-Job briefing of CLO-07-1627, “*S-102, Ready Waste Drum for Shipping*”;
- Observed JRG meeting for CLO-WO-07-1595, “*Install Jumpers to Drain Lines at S-102*”;
- Distributed ORP assessment report, “*Assessment of CH2M HILL S-102 Spill Event Recovery Activities*”;
- Observed walk down of CLO-WO-07-1341, “*S-102, Remove and Dispose of Contaminated Soil @ R-7*”;

- Observed fieldwork for hydraulic line draining at S-102;
- Reviewed TF-AOP-011, "Response to Chemical and/or Radiological Events";
- Attended pre-job briefing for CLO-WO-07-1627, "S-102, Ready Drum for Shipment";
- Attended pre-job for CLO-WO-07-1545, "S-102, Dispose of Equipment Outside the HRA"; and
- Attended pre-job for hydraulic line draining at S-102.

In the area of Conduct of Operations, the FRs noted the following (detailed in Section V):

**Strength: The S-302 pre-job performed on October 24, 2007, was exceptional.** (Courtney Blanchard 373-4234.)

**Strength: Dilution Hose Removal Planning and Field Work Execution.** (Frink, October, 12, 2007)

**Strength: Closure Operations Personnel Demonstrated Exceptional Performance During the S-102 Dilution Hose Removal Planning and Field Work Execution.** (Frink, October 12, 2007.)

**Strength: Field Work Supervisors emphasized attentiveness during the pre-job briefing for S-102 hydraulic line draining.** (Rob Yasek, November 1, 2007.)

**Finding: Insufficient maintenance employed in Equipment Labeling Program.** (Patel, November 1, 2007.)

**Non-Cited Finding: Inadequate use of radios for entry into Closure Operations TF.** (Wright/Frink, October 1, 2007.)

**Non-Cited Finding: Conduct of Operations issue - Yellow strobe alarm outside 204-AR has been actuated for most of this calendar year.** (Sorensen, October 11, 2007.)

**Non-Cited Finding: On-Call Facility Representative Not Informed of 222-S Contamination Event.** (Blanchard, October 15, 2007.)

**Non-Cited Finding: Pre-job Briefing Inadequate.** (Frink, October 23, 2007.)

**Non-Cited Finding: Work Steps Performed Out of Sequence During an S-102 Equipment Removal Evolution.** (Wright October 22, 2007.)

**Non-Cited Finding: Inadequate Signs and Postings in Change Trailers.**

**Observation: Discrepancy Identified in Waste Generation Planning at 242-A.** (Williamson, October 15, 2007.)

**Observation: 3-Way Communications Improvement is Marginal Despite Emphasis by CH2M HILL Management and ORP FR.** (Frink, October 22, 2007.)

**Observation: All Lighting in A-271 Control Room Observed to Be Extinguished.** (Sorensen, October 24, 2007.)

**Observation: Ten Different Fluorescent Light Bulbs either Missing or Extinguished in 271-AN.** (Sorensen, October 24, 2007.)

**Observation: Interface Issue Identified During the Planning of S-102 Sample Packaging and Transportation Work.** (Blanchard, October 31, 2007.)

### **Radiological Control Work Practices**

Radiological control work practices were observed for work activities and operations during the month of October. Observed field operations and activities included, but were not limited to, the following:

- Oversee response for AOP-011 for liquid found on the floor underneath a waste bag in the 242-A airlock;
- Attended RAP training for TOPOFF 4;
- Observed S-102 Dilution Hose Removal;
- Attended Post-Job ALARA review for CLO-WO-07-1267 (S-102 Drain Dilution Hose);
- Reviewed TF-AOP-011, "*Response to Chemical and/or Radiological Events*";
- Observed the conduct of performing the S-302 grab sample;
- Observed walkdown at C-Farm for camera removal from riser 6 of tank C-109;
- Observed attempted removal of camera from C-109;
- Performed walk down of S-102 sample drum (LAB-WO-07-1849);
- Performed back shift coverage and followed the S-102, Remove and Dispose of Equipment Outside of the HRA (CLO-WO-07-1545) job;
- Performed field oversight of the S-102 yellow jacket and wiring removal mock up;
- Performed field oversight of CLO-07-1627, "*S-102, Ready Waste Drum for Shipping*";
- Observed walkdown for removal of electrical equipment outside of the HRA at S-102;
- Attended Fact Finding for S-102, Remove and Dispose of Equipment Outside of the HRA (CLO-WO-07-1545);
- Attended pre-job brief and conducted field oversight of S-102, Remove and Dispose of Equipment Outside of the HRA (CLO-WO-07-1545), specifically the disconnection of the HPM tubing;
- Attended pre-job briefing for CLO-07-1627, "*S-102, Ready Waste Drum for Shipping*";
- Reviewed CH2M-PER-2007-1370, "*S-102 TSR Violation for Dilution System Design*";
- Reviewed Occurrence Report EM-RP-CHG-TANKFARM-2007-0010, "*Tank 241-S-102 Dilution System Design Represents a Technical Safety Requirements Violation*";
- Observed the investigative survey at 242-A evaporator (pot) room;
- Observed performance of U-361 field work;



- Observed the response to an ATL personnel contamination;
- Attended the pre-job and observed the decontamination of a small area identified west of cell 3 in Building 11A and determined the source of the contamination;
- Observed draining of SX Sludge Cooler condensate line catch basin;
- Attended the U-361 pre-job for the removal of the drill string from riser #5; and
- Attended the pre-job briefing and observed the fieldwork for an entry into the airlock at 242-A to remove a potentially leaking waste bag.

In the area of Radiological Controls, the FRs noted the following (detailed in Section V):

**Strength: Excellent Radiological Control practices observed during A-TF Flammable Gas Concentration Surveillances.** (Wright, October 3, 2007.)

**Finding: Contamination Has Migrated From Posted Contamination Areas to Formerly Clean Areas Under Normal Operating Conditions.** (Williamson, October 31, 2007.)

**Non-Cited Finding: Non-Compliance Found for Status Map Procedures.** (Patel, October 29, 2007.)

**Observation: Potentially Unposted Contamination Area.** (Ciola October 24, 2007.)

**Observation: J-Sealing Technique.** (Ciola, October 24, 2007.)

**Observation: Inconsistency in Teaching J-Sealing Technique.** (Ciola, October 24, 2007.)

**Observation: Health Physics Technician Phone Number Not Posted Near Change Trailer Telephones.** (Patel, October 29, 2007.)

**Conclusion:**

The focus areas for the month were Conduct of Operations and Radiological Controls. Some improvement has been noted in the area of Radiological Controls. The Radiological Control first line supervisors assigned to high risk activities are doing a good job of setting expectations and enforcing requirements. ORP encourages this improving trend. Field performance problems in the area of Conduct of Operations indicated inadequate implementation of existing requirements and inattention to detail. This level of performance does not meet expectations. Direct, continuous management involvement is needed to communicate and enforce expectations with the workforce. Because of the issues found during October, the FRs will continue to observe performance in Conduct of Operations and Radiological Controls.

## V. Strengths and Deficiencies

### Strength:

#### **Excellent Radiological Control practices observed during A-TF Flammable Gas Concentration Surveillances. (Wright, October 3, 2007.)**

On October 3, 2007, during the A-TF Flammable Gas Concentration Surveillance the Health Physics Technician (HPT) assigned to the job demonstrated excellent radiological control practices. The HPT led the work crew into the farm measuring dose using both open and closed window readings. When the work crew got to the different work areas the HPT would conduct dose surveys of the area to find the lowest possible dose area for the work crew to stand. The HPT also conducted contamination surveys of the areas that the work crew would be placing their procedures and equipment to help prevent the spread of contamination.

#### **The FR received timely and thorough support from the Operators at 242-A. (Williamson, October 4, 2007.)**

The FR received timely and thorough support from the Operators at 242-A while validating the assumptions of antifoam injection rates and volumes in RPP-CALC-29700. The Operators took the time to gather the procedure, MSDS, and tank volume information sheets before they took the FR to the tank and thoroughly described how the system worked. Their experience and professionalism were appreciated.

#### **Closure Operations Personnel Demonstrated Exceptional Performance During the S-102 Dilution Hose Removal Planning and Field Work Execution. (Frink, October 12, 2007.)**

During the period October 4-6, 2007, COs completed the removal of the S-102 Dilution Hose. The efforts leading up to the field work involved extensive planning, execution of several mockups, and the coordination of a large portion of COs personnel. Prior to field work each night, the Field Work Supervisor (FWS) conducted exceptional Pre-Job briefings. ORP oversight for this event included 4 personnel, all of whom remarked that the Pre-Job briefings were among the very best that they had ever witnessed. The Pre-Job briefings were very thorough and very professionally conducted. Each night that the field work was performed, all employees demonstrated the highest degree of professionalism. The teamwork and professionalism that was demonstrated by the S-102 Dilution Hose Removal Team was superb and each individual deserves to be commended.

#### **The S-302 pre-job performed on October 24, 2007, was exceptional. (Blanchard 373-4234).**

During the pre-job briefing for clam-shell sampling at catch tank S-302, the FWS addressed all of the requirements of Procedure TFC-OPS-MAINT-C-03, REV A-4, "*Pre-job Briefing*". with an effective and thorough approach. The FWS had sketched on the white board a plan view of the S-302 job site. The plan view included radiological boundaries, the location of industrial hygiene sampling equipment, radiological step-off pad, platform, laundry trailer, and location of

boundary fencing. The FWS used this plan view while describing job assignments, staging if there was an emergency, and personnel protective equipment donning requirements. Additionally, the FWS went over the emergency response protocol to CH2M HILL and Fluor Hanford and the most likely abnormal operating procedure for this sampling activity. The FR observed the FWS enforce good conduct of operations by immediately stopping a side conversation, addressing the crew in an astute and professional manner, and demanding the crew to pay attention. This pre-job demonstrated how effective a well-planned pre-job briefing assists in ensuring successful work execution.

**FWS emphasized attentiveness during the pre-job briefing for S-102 hydraulic line draining.** (Rob Yasek, November 1, 2007.)

During the pre-job briefing for the draining of hydraulic lines to the high-pressure mixers at S-102, a worker was observed working a puzzle while the briefing was underway. A FWS walked over and confiscated the puzzle from the worker. Another worker got a cell phone call, also while the briefing was underway, and was asked by another FWS to end the call and pay attention to the briefing, which was done. These actions reinforced the proper atmosphere for preparing to work under hazardous radiological conditions and enhanced the effectiveness of a thorough pre-job briefing.

**Concern:**

There were no concerns to report for the month of October, 2007. One concern, written on October 3, 2007, was issued in the September 2007, report since the issues supporting that concern were found in September.

**Findings:**

**A-08-AMTF-TANKFARM-001-F01: Contamination Has Migrated From Posted Contamination Areas to Formerly Clean Areas Under Normal Operating Conditions.** (Williamson, October 31, 2007.)

Requirement: 10 CFR 835 Occupational Radiation Protection, Sec. 835.1102, "*Control of Areas*". (a) 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.

Discussion: The FRs have noticed a trend of formerly clean areas being posted as contamination areas. The 701-A courtyard and the AY farm cooling towers are two such examples that were posted because of contaminated rabbit feces and tumbleweed fragments. Throughout the TFs, tumbleweeds can be seen in contamination areas, indicating inadequate vegetation control and inadequate tumbleweed cleanup efforts. In A-farm, tumbleweeds can be seen on the eastern hillside, which is covered in Shotcrete. Although Pest and vegetation control programs do exist,

they appear inadequate to prevent the spread of contamination. The spread of contamination results in increased complexity of work and additional radioactive waste generation.

**S-08-AMTF-TANKFARM-001-F01: Insufficient Maintenance Employed in Equipment Labeling Program.** (Patel, November 1, 2007.)

Requirement: TFC-OPS-OPER-C-32, REV A-4, 3.3 states:

- “Operators are observant for, and will report, lost, missing, or damaged labels during routine rounds and other activities. Creates and installs temporary component identification tags (TCIT).” TFC-OPS-OPER-C-32, REV A-4, 4.2 “*Monthly Review of Tag Log*” states: Shift Manager should “Ensure the TCIT log is reviewed monthly and that the following are performed”:
- a. Check all installed tags to verify that they are still legible;
  - b. Ensure tags that have been replaced with permanent labels have been removed.;
  - c. Ensure the TCIT log is updated.; and
  - d. Document completion of TCIT monthly review.”

Discussion: Permanent identification labels and temporary tags are not maintained in an adequate fashion. Many of the permanent tags are illegible and damaged without temporary tags in place. Of the temporary tags in use, many are weathered and, generally, in poor shape. Inadequate labeling leads to increased effort for routine evolutions, since engineers must be relied upon to properly identify equipment when work needs to be completed. The result of this approach is an ineffective temporary labeling program.

**Non-Cited Findings:**

**A-08-AMTF-TANKFARM-001-N02: Inadequate use of radios for entry into Closure Operations TFs.** (Wright/Frink, October 1, 2007.)

While conducting field oversight of evolutions in S-Farm and C-Farm the FRs noticed that the work crew did not have a radio with them. The FRs had a radio and this permitted work to continue. When asked why they didn’t have a radio the work crew indicated that cell phones are adequate for emergency notifications. After interviewing several individuals from CO, this does not appear to be an isolated incident. TFC-OPS-OPER-C-04, Section 4.1, “*Access and Key Control for TF Facilities*”, states that “for all personnel who require access to a TF, verify that the field work supervisor/point-of-contact for that work group has a radio that will receive transmission of emergency communications.”

This issue was brought up with the COs Manager who took immediate action: The key custodian has been directed by contractor management not to give out any TF keys unless that person checks out a radio or has a radio with them.

**A-08-AMTF-TANKFARM-001-N03: Conduct of Operations issue - Yellow strobe alarm outside 204-AR has been actuated for most of this calendar year.**  
(Sorensen, October 11, 2007.)

While accessing 204-AR to inspect admin locks, the FR observed the yellow strobe light outside the access door flashing. The FR complied with the sign, abstained from entering and called the shift manager to ask him what to do. Discussion with the shift manager indicated that the breathing air CAMs in the building had been disabled such that the alarm was no longer valid and that it was safe to enter, in effect ignoring the strobe light. The strobe alarm apparently should have been disconnected but had not been. Further discussions with the SM indicated that this condition had been in effect for most of this calendar year. The facility manager later indicated that there was an ECN to disable the alarm and he thought it had been completed. ORP is concerned about recent Conduct of Ops issues and this is another example of one, where personnel have become desensitized to an alarm condition and this has been allowed to go on for quite some time. DOE O 5480.19 contains requirements for adhering to all posted personnel protection requirements and for correcting malfunctioning or inaccurate instruments when they are discovered.

**A-08-AMTF-TANKFARM-001-N04: On-Call Facility Representative Not Informed of 222-S Contamination Event.** (Blanchard, October 15, 2007.)

Requirement: TFC-OPS-OPER-D-01, "Event Notification", requires notification of the on-call FR for significant operational issues.

Discussion: On October 15, 2007, at approximately 10:45 am a Sampling Custodian identified that his personal shoe was contaminated while exiting Room 4 QR. Room 4 QR was a Radiation Buffer Area (RBA) that required a hand and foot survey when exiting into the 222-S Laboratory's East hallway. The Sampling Custodian immediately notified a Radiological Control Technician (RCT) who identified a contamination speck of 40,000 disintegrations per minute (dpm) beta-gamma, no alpha on the RCT's left shoe. The Facility Operations Manager (FOM) isolated the path the sampling custodian had taken from exterior door 13 to Room 4 QR and requested RCTs to perform radiological surveys. This path included a survey along the north side of 222-S. No additional contamination was identified. At approximately 1:30 pm the FOM notified the 222-S Laboratory FR but the On-Call FR was not notified. This is another example that supports the October 3, 2007, CONCERN, "The TFC failed to ensure the requirements for notification of the FRs for operational events were met".

**A-08-AMTF-TANKFARM-001-N05: Pre-job Briefing Inadequate.**  
(Frink, October 23, 2007.)

On October 23, 2007, while observing the Pre-Job briefing for CLO-WO-07-1627, "241-S-102, Ready Drum for Shipping", several workers left the room to take rest room breaks and respond to cell phone calls during the pre-job briefing. This is contrary to the requirements of TFC-OPS-MAINT-C-02, Section 4.2, "Pre-Job Briefing", which states that the employee's responsibilities are:

Participate in pre-job briefing.

Understand the following:

- Scope of work;
- What is expected during the performance of the work;
- Who is in charge of the task;
- Controls that have been established for the work to be performed; and

Ask all questions pertinent to scope of work, hazards controls, and requirements.

Attending to rest room breaks and cell phone calls requires an employee to be absent from a pre-job briefing and therefore prevents them from fulfilling their responsibilities as defined in TFC-OPS-MAINT-C-02. This behavior represents a non-compliance to TFC-OPS-MAINT-C-02.

In light of the fact that employees were not present during portions of the pre-job, the FR interrupted the pre-job briefing and recommended that the pre-job continue after everyone was present. The FWS agreed and repeated those portions of the briefing that were missed (i.e., WHA and RWP).

**A-08-AMTF-TANKFARM-001-N06: Work Steps Performed Out of Sequence During an S-102 Equipment Removal Evolution.** (Wright, October 22, 2007.)

*Requirement:* TFC-OPS-MAINT-C-01, "Tank Farms Contractor Work Control", 4.7.1 step 11 states that "Using Attachment D as a guide, perform work in accordance with the work instructions and document results on the CHAMPS work record", Appendix D goes on to say "Perform work instruction steps in the order that they are written unless the work order specifies that sequencing is negotiable".

*Discussion:* On October 22, 2007, during an evolution to disconnect and remove the High Pressure Mixer tubing from the area outside of the S-102 HRA/HCA (CLO-WO-07-1545, "S-102, Remove and Dispose of Equipment Outside of the HRA") the FR noticed that one of the steps had been completed out of sequence from the work instructions. The step that was performed out of sequence was a minor step and had no safety impact to the worker, environment, facility or process. I brought this to the attention of the Senior Supervisory Watch (SSW), who then notified the FWS. The FWS conducted a safety pause and notified the Shift Manager. The FWS was told to make an entry into the work record and the Shift Manager allowed work to continue. A fact finding was held and a PER (CH2M-PER-2007-1846) was written.

**S-08-AMTF-TANKFARM-002-N01: Inadequate Signs and Postings in Change Trailers.** (Patel, October 29, 2007.)

Requirement: TFRCM HNF-5183 Article 325.6 states:

"Instructions for donning and removing protective clothing should be posted at the dress-out and step-off pad areas," and, TFRCM HNF-5183 Article 231.5 states:

“Postings should be maintained in a legible condition and updated based upon the results of the most recent surveys.”

**Discussion:** The following signs and postings in various change trailers were found to be missing or damaged beyond legibility:

- AN – Safety glasses sign on front door – severely faded;
- AP – Instructions for disposal of damaged protective clothing – missing;
- AW – Donning sequence instructions – missing;
- AY1 – Defibrillator warning outside on wall of trailer – faded;
- AY2 – Instructions for disposal of damaged protective clothing – missing; and
- SY – Donning sequence instructions – missing.

AY2 also contained a rubber protective boot in a clear disposal bag instead of a yellow radiological waste disposal bag. This was a trailer that did not have a posting for proper disposal of damaged protective clothing.

**S-08-AMTF-TANKFARM-002-N02: Non-Compliance Found for Status Map Procedures.**  
(Patel, October 29, 2007.)

**Requirement:** TFC-ESHQ-RP\_MON-P-10 Article 4.3.6 states:

“A red dry-erase marking pen is preferred to be used to identify the following information posted on the status maps. A red grease pencil is acceptable.

- General area dose rates;
- High and very high radiation areas;
- Hot spot dose rates, and a blue dry-erase marking pen is preferred to be used to identify the following information posted on status maps. A blue grease pencil is acceptable;
- Contamination levels greater than 10 times HNF-5183, Table 2-2, removable levels;
- High contamination areas; and
- Airborne radioactivity areas.”

**Discussion:** Status maps in change trailers AN, AW, AY1 and AY2 did not comply with the color coding. Some maps had the legend crossed out, others had no legend to explain color coding, and some had markings in colors other than red and blue.

### **Observations:**

**A-08-AMTF-TANKFARM-001-O07: Discrepancy Identified in Waste Generation Planning at 242-A.** (Williamson, October 15, 2007.)

The AOP-11 entry for evidence of a waste bag leak in the 242-A airlock, and the subsequent job to remove and repackage the bag, would not have been required if the TFC would have met the requirements of their own waste generation procedures. The TFC has recognized this issue and

has assigned CH2M-PER-2007-1814 (PER with Resolution) to address it. The waste drum that was issued was not appropriately marked at the start of the job. The Waste Planning Checklist identified the oil as containing chromium and that the waste oil was a RCRA-regulated low-level waste, yet the drum that was requested and supplied was a low-level waste drum only. The labeling that would mark the drum as RCRA-regulated was not provided. The FR discussed this issue with the FWS; the issue was resolved prior to the waste being placed into the drum.

**A-08-AMTF-TANKFARM-001-O08: 3-Way Communications Improvement is Marginal Despite Emphasis by CH2M HILL Management and ORP FRs. (Frink, October 22, 2007.)**

During a review of the oversight documentation that has been generated in support of the S-102 spill recovery it was noted that 3-way communications has marginally improved despite repeated emphasis by ORP oversight and direct intervention by CH2M HILL management. In most cases, improvement is noted only when CH2M HILL management is directly involved in the enforcement of the use of 3-way communications. Additionally, during the CH2M HILL Safety Pause, several employees clearly did not have an appreciation for the importance of ensuring that accurate information is conveyed and how 3-way communications can promote conveyance of accurate information. It was also clear in the Safety Pause that several employees did not understand when it was most appropriate to use 3-way communication. Chapter 4 of the TFs Conduct of Operations Manual clearly specifies when the use of 3-way communication is appropriate. Chapter 4 states, "three-way communication is expected for conveying plant status, configuration, changes, conducting operations and providing direction such as:

- Communicating emergency directions;
- Communicating operating instructions such as start-up and shutdown of equipment; and
- Reporting process parameters such as temperature, level, flow, and material balance discrepancy.

**A-08-AMTF-TANKFARM-001-O09: All Lighting in A-271 Control Room Observed to Be Extinguished (Sorensen, October 24, 2007.)**

The FR entered the A-271 building to inspect an administrative lock on a circuit breaker. All the lights in the control room were observed to be extinguished. The two emergency lights were also inoperable (battery was dead). Operators are required to enter this building daily to observe the alarm panels for alarms and complete their round sheets. The FR studied the schematic attached to the lighting panel and observed that circuit breaker #8 powered the circuit for the control room lights and it was "on". After discussions with the CO and WFO Shift Managers, it was determined that a Lockout/Tagout (L&T) was in place that has de-energized power for lighting in A-271. The L&T was being utilized for the fuel oil cleanup outside A-271, but this work was completed some time ago and the L&T was not cleared at that time. Operators were propping the access door open to provide some light in the building for their rounds. The shift manager took action within one day to clear the L&T and restore lighting in the building.



**A-08-AMTF-TANKFARM-001-O10: Ten Different Fluorescent Light Bulbs either Missing or Extinguished in 271-AN. (Sorensen, October 24, 2007.)**

After observing poor lighting conditions in A-271, the FRs decided to inspect lighting conditions in other areas that are frequently utilized by TF personnel. Ten different fluorescent light bulbs were found to be either missing or extinguished in 271-AN. This represented approximately one quarter to one third of the light bulbs in the building. Operators and other personnel are required to access this building regularly to fulfill their duties. While the lighting in the building was still reasonably adequate, the FRs brought this to the attention of the shift manager for his action to avoid any further degradation in the lighting conditions. The TFC took prompt action to have the building relamped, completing the task the next day. Seven of the 10 bulbs were burned out and three had ballast problems.

**A-08-AMTF-TANKFARM-001-O11: Potentially Unposted Contamination Area. (Ciola, October 24, 2007.)**

During a tour of the radioactive material storage area alongside the AP TF, the Field Crew Manager and FR Candidate noticed the integrity of a bag of waste was questionable where a small hole may have been present. The Field Crew Manager quickly initiated spill actions and an RCT arrived on scene. The bag, personnel, and area were surveyed. No contamination was found. The bag was then sealed with tape. It should be noted that this event was handled appropriately by all involved.

**A-08-AMTF-TANKFARM-001-O12: J-Sealing Technique (Ciola, October 24, 2007.)**

J-seals on bags of waste contained in the radioactive material storage area alongside the AP TF appeared inconsistent. Some bags were taped closed below the loose ends at the opening of the bag, while others had the opening of the bag exposed and uncovered with tape. The latter condition may not meet the functional requirement of a sealed waste container. Radiological contamination controls require waste containers to be sealed to prevent spread of contamination. J-seal waste handling training provided in course number 350560 instructs the worker to twist the opening, tape the base of the twist, and "tape around both the top and the previously taped area." The FWS was participating in the walk through of the area, and he immediately had the bags sealed using a J-seal that covered the loose ends of the bag with tape.

**A-08-AMTF-TANKFARM-001-O13: Inconsistency in Teaching J-Sealing Technique (Ciola, October 24, 2007.)**

J-seal waste handling training materials provided in course number 350560, Rev 10.c. provide conflicting instructions to the worker on J-sealing technique. Page 40 instructs the worker to twist the opening of the bag, tape the base of the twist, and "tape around both the top and the previously taped area." Figure 11 of the training materials depicts a typical J-sealed bag with its opening not being covered by tape. Discussed with TF Management.

**A-08-AMTF-TANKFARM-001-O14: Interface Issue Identified During the Planning of S-102 Sample Packaging and Transportation Work. (Blanchard, October 31, 2007.)**

The S-102 waste drum packaging and transportation work planning would have been enhanced through effective interface between CO and Analytical Technical Services (ATS). For example, managers, planners, and workers at 222-S Laboratory were not familiar with respiratory requirements being implemented at the S-102 site, and the hazard basis for respiratory protection there. On October 23, 2007, during the 222 Laboratory planning session there was significant discussion on the contamination levels on the outside of the waste drum. Attendees were concerned that CO did not understand the acceptance levels for contamination on the exterior of the 55 gallon drum. In these planning sessions there was no, or inadequate, representation by the other division which hindered planning progress. These issues could have been easily addressed if CO and ATS personnel would have participated in all planning efforts.

**S-08-AMTF-TANKFARM-002-O03: Health Physics Technician Phone Number Not Posted Near Change Trailer Telephones. (Patel, October 29, 2007.)**

According to radiological work practices, if a worker alarms the PCM twice they must call an HPT. In the case where an individual's radio is not functioning or available, the worker should use the telephone located in the RBA. The change trailers do not have HPT phone numbers posted near the telephones. Posting a list of important numbers would be beneficial in such a situation.

**VI. Closed Finding:**

No findings were closed in October.