U.S. Department of Energy

Office of River Protection

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

07-TOD-104

OCT 24 2007

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) TANK FARM PROJECT MONTHLY REPORT FOR SEPTEMBER 2007, A-07-AMTF-TANKFARM-005

The ORP Tank Farm Project Facility Representatives (FR) and Technical Staff conducted evaluations of the Tank Farm and 222-S Laboratory operations and activities during September 2007. The attached report documents the results of the evaluations, which resulted in the identification of one Strength, one Concern, three Findings, three Non-Cited Findings, and three Observations.

The Concern noted by the ORP FRs was: **Operational Event Notifications to the DOE On-Call Facility Representatives Were Not Adequate**. This Concern was supported by several instances of inadequate event notifications to the FRs. CH2M HILL Hanford Group Inc.(CH2M HILL), should make every effort to keep ORP FRs informed of operational events in accordance with existing requirements, processes, and procedures.

The FRs focused their September reviews on Conduct of Operations and Radiological Work Practices. Some improvement was noted in both areas, however additional emphasis and management attention is warranted to ensure that improvements continue. The FRs did observe direct involvement by the Radiological Control First Line Supervisors in immediately correcting deficient radiological work practices in the field.

CH2M HILL shall provide a written response to the identified concern within in 30 days from receipt of this letter. This response should include the following information: identify the cause(s), corrective actions taken (immediate and long-term) to correct the cause(s) and to prevent recurrence, and expected completion date for all corrective actions.

For the identified Findings, Non-Cited Findings, and Observations in the attached report, CH2M HILL should use existing corrective management processes to affect corrective actions.

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 Tank Farms

TOD:MCB

Attachment

cc w/attach:
E. J. Adams, CH2M HILL
C. E. Anderson, CH2M HILL
M. A Wright, 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
T. L. Jennings, 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
R. G. Stickney, CH2M HILL
S. Foelber, BNI
K. T. Juroff, EM-22
R. G. Quirk, DNFSB
C. M. Fetto, ORP
S. M. Hahn, RL
CH2M Correspondence Control

Office of River Protection

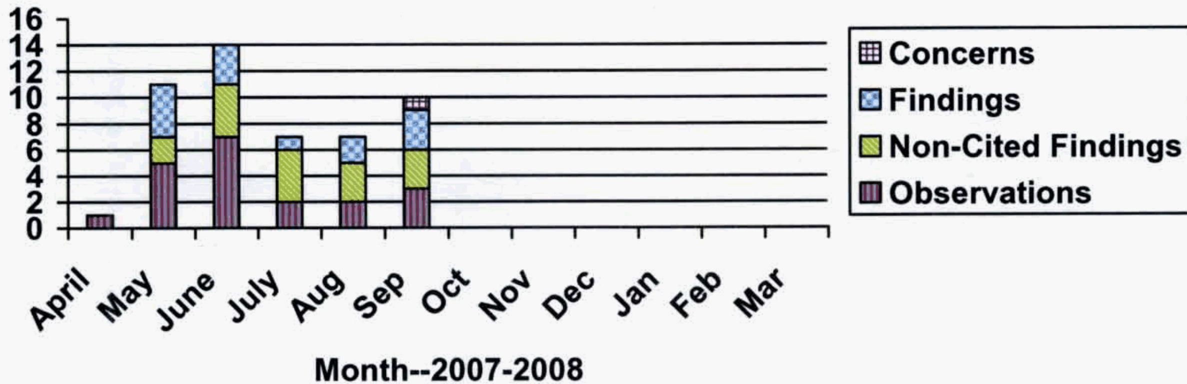
Tank Farm Project Monthly Report
For September 2007
A-07-AMTF-TANKFARM-005

I. Introduction/Summary

During the month of September 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, 63 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. One Strength, one Concern, three Findings, three Non-Cited Findings and three Observations were noted during the month. The Concern: **Operational Event Notifications to the DOE On-Call FRs Were Not Adequate**, was written after an early October failed FR notification which followed three failed notifications in September. The Concern, Strength, Findings and Observations are detailed in Section V of this report.

The focus areas for the month were Conduct of Operations and Radiological Controls. During the month, the contractor implemented a self-imposed safety pause. FRs determined that with the exception of the FR notification Concern, there was some improvement in the trend of Conduct of Operations and Radiological Controls. During most of the month, work was carefully limited and controlled. As there was limited field work to observe, FRs will continue to monitor performance in Conduct of Operations and Radiological Controls. FRs will also continue to observe the work control process as full resumption of work follows the safety pause.

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.



II. Analysis and Discussion

In September 2007, the ORP FR and technical staff performed 39 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:

- Deconstruction of the melt box from Integrated Dryer Melt Test 38D;
- U-361 catch tank core sampling;

- Cutting and disposal of C-200 condensate drain pipe;
- U-Farm Vadose Sampling equipment de-rigging;
- 241-AW Annulus Ventilation system High Efficiency Particulate Air Filter replacement;
- Activities to place a tank to catch condensate line leakage at the SX sludge cooler;
- Operator conduct of daily/weekly rounds;
- S-102 dilution hose removal mock up activities;
- S-102 High Radiation Area (HRA)/High Contamination Area (HCA) entry for contamination area/dose rate surveys and application of fixative;
- Observed CH2M HILL Hanford Group Inc.,(CH2M HILL) work pause briefings and Human Performance Improvement (HPI) training;
- Reviewed Double-Contained Receiver Tank flammable gas monitoring requirements and activities;
- Reviewed the 222-S Laboratory 219-S Building Sump No. 9 low level alarm response and notification;
- Investigated radiological dose levels in the 242-A Evaporator pot room;
- Attended S-102 dilution hose planning meeting for waste removal and sampling.

In addition, Tank Farms Operations Division (TOD) observed the implementation of a Safety Pause at Closure Operations, Waste Feed Operations (WFO) and Analytical Technical Services. As the result of several recent operational issues that culminated on September 18, 2007, when a group of workers performed work without the required respiratory protection, the CH2M HILL Chief Operating Officer (COO) instituted a Safety Pause. During this pause, only work tied to Environmental or Technical Safety Requirements was performed. Managers trained and briefed employees on human performance factors, conduct of operations, and attention to detail, including lessons learned from the S-102 spill event. They also held discussions with workers and the opportunity was taken to hear and address some of the workers' concerns. Management recognized that a September 27, 2007, union vote was a distraction for the workers and continued the limited work until after the vote had been completed. A measured return to work initially included COO approval of all work in the field and additional management oversight of field evolutions. A plan for the resumption and monitoring of medium and high risk work is in place.

III. Injuries and Occurrences

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

There was one occurrence report issued during the month of September 2007:

Personnel Failed to Wear Respiratory Protection Required by the Radiological Work Permit (EM-RP--CHG-ANALLAB-2007-0003): On September 18, 2007, while performing core sampling of the U-361 waste tank, personnel failed to wear respiratory protection as required by the Radiation Work Permit (RWP) when removing the drill string. No personnel

contamination occurred. Air monitoring results did not identify airborne radioactivity above background. This was categorized as a near-miss Group 10 (3) SC (3).

As a result, work was stopped and a fact finding meeting was held. The radiological data was reviewed and it was determined that no radiological contamination or exposures occurred. The response to this occurrence is ongoing.

IV. Monthly Focus Review for September: 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 and September 2007.

During the month of August, the FRs conducted numerous surveillances of the Tank Farm Contractor (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 August, 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 September. Observed field operations and activities included:

- Operator rounds for 244-AR, A, AX, and C Farms as well as the CR Vault;
- Fact Finding for S-102 Lock and Tag issue with power cord outside of arms length;
- Fact Finding meeting for not donning respirators as required by the RWP during the U-361 core sampling;
- Fact Finding for C Farm Lock and Tag device that fell off of breaker switch;
- Fact Finding for personal contamination at 222-S lab;
- Two JRGs for the S-102 Dilution Hose Removal;
- WFO activities during Safety Pause;
- Walkthrough 272-AW and discussed Safety Pause with Field Work Supervisors;
- Walkthrough 242-A and discussed Safety Pause with the Shift Manager;
- Walkthrough WFO Shift Office and discussed Safety Pause with the Shift Manager;
- Walkthrough 242-A to evaluate the effect of a flush of the pump room;

- Responded to notification of stop work at AP and monitored contractor response; the contractor took actions to minimize immediate impacts while still responding to employee concern;
- Reviewed completed encasement pressure test information;
- Walkthrough of C-Farm;
- Witnessed contractors cutting the C-200 condensate lines for disposal. Glove bags were used and a secondary engineered control was also used (fixative);
- Observed the construction site for the T Farm environmental barrier;
- Walked down a lock and tag installed to support the belt, bearing, and shaft replacement of the A Train primary exhauster in AN Farm;
- Walked down the administrative locks for all seven of the transfer pumps in AN Farm;
- Observed one of the WFO monthly safety meetings.

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

Strength: Strong Commitment to Housekeeping During 222S Laboratory Maintenance Activities. (Blanchard, September 20, 2007.)

Concern: Operational event notifications to the DOE on-call FRs were not adequate. (Williamson, October 3, 2007.)

Finding: The on-call FR was not informed of an event at the 222-S Laboratory. (Blanchard, September 14, 2007.)

Finding: The on-call FR was not informed of a significant event involving the TFC's construction subcontractor. (Sorensen, September 19, 2007.)

Non-Cited Finding: Deficiencies found in Temporary Component Identification Tag program. (Williamson, September 26, 2007.)

Observation: The Waste Package Checkout Log for WFO-WO-000757 Contained Errors. (Ciola, August 31, 2007.)

Observation: Enhancement for U-361 Drill String Critique Identified. (Blanchard, September 18, 2007.)

In addition, the following notes were made during FR oversight. These areas are below the threshold for reporting as issues, but are used in the overall analysis of contractor performance:

- Housekeeping at the 222-S Lab was excellent in the areas where installation work was ongoing for the plasma optical emissions mass spectrometer in Room 1 L and new ablation laser in Building 11A. Housekeeping throughout the lab was good.

- During the S-102 HRA entry, the FR noted that the 3-way communication is getting better but could be improved. Most of the improvement is based on prompting by the Radiological Controls supervisor.

- The construction tent between the SX change trailer and the control trailer has a large build up of tumbleweeds behind it which is crossing the Contamination Area (CA) posting. The tent itself is in need of housekeeping as well.

- During a facility walkthrough, the FR found the AW change trailer door propped open and no one in the change trailer.

Radiological Control Work Practices

Radiological control work practices were observed for work activities and operations during the month of September. Observed field operations and activities included:

- S-102 dilution hose removal mock up;
- S-102 HRA/HCA entry for dose and contamination surveys;
- PCM-1B weekly cleaning, inspection and functional check for the tank farms change trailers;
- Observed 222-S 11-A temporary CA established after contamination was discovered;
- Fact Finding meeting for not donning respirators as required by the RWP during the U-361 core sampling;
- Fact Finding for personnel contamination at 222-S lab; and
- Two JRGs for the S-102 Dilution Hose Removal.

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

Finding: Improperly posted doffing instructions for Personnel Protective Equipment (PPE) were found at the AY-1 change trailer. (Williamson September 18, 2007.)

Non-Cited Finding: Attention-to-Detail Lacking During Radiological Work. (Ciola, August 31, 2007.)

Non-Cited Finding: Improper Radioactive Material Packaging. (Ciola, September 18, 2007)

Observation: General Survey Instructions for PCM-1B and self frisking not visible from the RBA. (Wright, September 24, 2007.)

In addition, the following notes were made during FR oversight. These areas are below the threshold for reporting as issues, but are used in the overall analysis of contractor performance:

- During the S-102 HRA/HCA entry, the FR noted that there were inconsistencies in the way workers doffed PPE while leaving the HCA. There is no consistent procedure for doffing the PPE while leaving the HCA.

- During the S-102 HRA/HCA entry, the FR noted that once all of the people were out of the HCA, the Health Physics Technicians (HPT) doing the field counts of the smears (in a CA) were throwing the gloves, bags, and trash into the HCA trash can (the only one out there) approximately three feet away. Several workers brought this up to the supervisor afterwards.

- The FR noted that the scoping meeting for the 219S Sump No. 9 inspection and pump repair did not appear to be adequately focused.

- During PCM-1B weekly cleaning, inspection and functional check for the tank farms change trailers the FR noted one instance when the operator was cleaning the foot detector with a High Efficiency Particulate Air (HEPA) vacuum cleaner (as allowed in the procedure) and boundary control of the RBA was less than adequate. The FR pointed this out to the operator who corrected the issue.

Conclusion:

The focus areas for the month were Conduct of Operations and Radiological Controls. A Concern was raised in the area of FR Notifications after repeated failures to notify the FR after an operational event. Without an effective notification, the FR cannot fulfill their role in the event evaluation and response, including the notification of ORP management. In addition to identifying errors in notification, this trend indicates ineffective corrective actions to ORP identified Findings. FRs determined that with the exception of the FR notification Concern, there was some improvement in the trend of Conduct of Operations and Radiological Controls. Through implementation of a Safety Pause, the last part of the month contained vastly reduced work activities and increased contractor management oversight of work. FRs will continue to observe the work control process as full resumption of work follows the Safety Pause. FRs will continue to observe performance in Conduct of Operations and Radiological Controls.

V. Strengths and Deficiencies

Strength:

Strength: Strong Commitment to Housekeeping During 222S Laboratory Maintenance Activities. (Blanchard, September 20, 2007.)

The FR has observed that housekeeping during maintenance work activities has been exceptional. Throughout the replacement of the 1F Hot Cell drain line replacement, the cell, greenhouse, and room were kept clear of debris and at the end of each day a thorough radiological survey of the greenhouse was performed. Many times the greenhouse's disposable foil floor liner was replaced when low levels of contamination were identified. These

contamination levels were well below any action levels specified on the RWP but the replacement was performed to ensure there was no spread or build-up of contamination. The FR noted that this practice was instrumental in the timely disassembly and disposal of the greenhouse and release of the room that was completed in less than half the scheduled time. Currently, maintenance is replacing the plasma optical emissions mass spectrometer in Room 1L and installing a new ablation laser in Building 11A. During these activities, housekeeping has been observed as excellent. Both these jobs include extensive electrical, ventilation, and structural work that have produced a large amount of waste. Maintenance craft dispose of generated waste during the conduct of work which has kept working conditions free of trip hazards and minimized clean-up at the end of the day.

Concern:

A-07-AMTF-TANKFARM-005-C01: Operational event notifications to the DOE on-call FRs were not adequate. (Williamson October 3, 2007.)

Four recent events were identified where notifications to the FRs were not in accordance with both the ORP's expectations and the TFC's own notification procedures. Three of these events were discussed in two separately issued findings. The findings cited the procedural requirements of TFC-OPS-OPER-D-01, Event Notification. The most recent instance and the three previously cited ones are as follows:

- On October 2, 2007, an electrical cart fell off the 2704-HV roof during high winds to an area frequently occupied by personnel. This incident was not reported to on-call FR. The FRs did not learn of this incident until the next morning when it was discussed in the work release meetings. This incident was ultimately reported as a group 10(3) SC3 (Near Miss) occurrence report.

- **Finding: The on-call FR was not informed of an event at the 222-S Laboratory:** On September 4, 2007, at approximately 9:15 am, the 222S Building 219 Sump No. 9 activated. Sump No. 9 was part of the secondary containment for 219-S Tank 104 that receives radioactive waste from several laboratory sinks. On September 6, 2007, CH2M HILL made a courtesy call to the Washington State Department of Ecology (Ecology) to notify them of the event and the fact the sump pump would not start when operations attempted to start it. Procedure TFC-OPS-OPER-D-01, Event Notification, requires notification of the on-call FR when a courtesy call/outside agency notification is made and for significant operational issues; yet on September 6, 2007, the on-call FR was not called.

- **Finding: The on-call FR was not informed of a significant event involving the TFC's construction subcontractor:** An event occurred on September 18, 2007, involving the TFC's construction subcontractor, Fluor Government Group (FGG), during chemical inventory of a Conex box. Three one-gallon containers of Methyl Ethyl Keytone (MEK) Peroxide were discovered which are potentially shock sensitive. One had been opened previously and the other two were unopened. They had been there since 2002. The Shift

Manager made a 911 call and the Hanford Fire Department (HFD) responded. Access to the Conex box was barricaded and restricted for 100 feet around. After consulting with the vendor, HFD and Waste Services performed a visual inspection to ascertain if the MEK was stratified, indicating off-gassing and in a potentially explosive state. They determined that this was not the case and the containers were in a safe condition. The containers remain in the Conex box pending disposal. This event constituted a significant operational issue that warranted a timely call to the on-call FR, as required by TFC-OPS-OPER-D-01, but this was not done. This follows an incident that occurred on September 1, 2007, where leakage of tank waste was identified on the floor of the 242-A evaporator pump room. TFC management was notified but the on-call FR was not notified until two days later.

- An incident that occurred on September 1, 2007, where leakage of tank waste was identified on the floor of the 242-A evaporator pump room. TFC management was notified but the on-call FR was not notified until two days later. *This event was reported within the above finding of September 19, 2007.*

Findings:

A-07-AMTF-TANKFARM-005-F02: The on-call FR was not informed of an event at the 222-S Laboratory. (Blanchard, September 14, 2007.)

Requirement: TFC-OPS-OPER-D-01, Event Notification, requires notification of the on-call FR when a courtesy call/outside agency notification is made and for significant operational issues.

Discussion: On September 4, 2007, at approximately 9:15 am, the 222S Building 219 Sump No. 9 activated. Sump No. 9 was part of the secondary containment for 219-S Tank 104 that receives radioactive waste from several laboratory sinks. On September 6, 2007, CH2M HILL made a courtesy call to Ecology to notify them of the event and the fact the sump pump would not start when operations attempted to start it. The On-Call FR was not called.

A-07-AMTF-TANKFARM-005-F03: The on-call FR was not informed of a significant event involving the TFC's construction subcontractor. (Sorensen, September 19, 2007.)

Requirement: TFC-OPS-OPER-D-01 requires a timely call to the on-call FR for significant operational issues.

Discussion: An event occurred on September, 18, 2007, involving the TFC's construction subcontractor, Fluor Government Group (FGG), during chemical inventory of a Conex box. Three one-gallon containers of MEK Peroxide were discovered which are potentially shock sensitive. One had been opened previously and the other two were unopened. They had been there since 2002. The Shift Manager made a 911 call and the HFD responded. Access to the Conex box was barricaded and restricted for 100 feet around. After consulting with the vendor, HFD and Waste Services performed a visual inspection to ascertain if the MEK was stratified,

indicating off-gassing and in a potentially explosive state. They determined that this was not the case and the containers were in a safe condition. The containers remain in the Conex box pending disposal. This event constituted a significant operational issue that warranted a timely call to the on-call FR, as required by TFC-OPS-OPER-D-01, but this was not done. This follows an incident that occurred on September 1, 2007, where leakage of tank waste was identified on the floor of the 242-A evaporator pump room. TFC management was notified but the on-call FR was not notified until two days later.

A-07-AMTF-TANKFARM-005-F04: Improperly posted doffing instructions for PPE were found at the AY-1 change trailer. (Williamson September 18, 2007.)

Requirement: Article 325.6 of the *Tank Farms Radiological Control Manual*, HNF-5183, requires the posting of PPE doffing instructions at step-off pad areas.

Discussion: A posting by the door to the AY1 change trailer incorrectly directed PPE doffing instructions prior to exiting the farm. The sign directed the removal of rubber overshoes prior to stepping onto the step off pad and the removal of outer gloves prior to proceeding through the door. There was neither a laundry bag nor a step off pad outside of the door, making compliance with the posting impossible. Further, the sign appeared to be a remnant of a past doffing process at the farm as the change trailer was setup for overshoe and outer glove removal on the inside of the trailer, with a doffing posting and laundry and waste receptacles readily available. This incorrect posting could easily confuse radiological workers thus compromising contamination control. In addition, the FR questions why other radiological workers have either not noticed this posting or ignored it. The Shift Manager and an HPT were notified of the issue, and the posting was promptly corrected.

Non-Cited Findings:

A-07-AMTF-TANKFARM-005-N05: Attention-to-Detail Lacking During Radiological Work. (Ciola, August 31, 2007.)

During the AW Annulus Pre-filter and HEPA Filter replacement several poor radiological work practices were noted:

- CA boundary violations occurred. There were several times during the work when workers' arms and the materials that were being handled crossed the CA barrier. Radcon technicians immediately surveyed areas where barrier violations occurred; contamination was not detected.
- Portions of the CA work involved handling used pre-filters covered with a fine dust. The worker did not change out gloves after handling these items and continued on to other work in the CA.
- The radiological control status board was not reviewed by most personnel prior to entry.

A-07-AMTF-TANKFARM-005-N06: Improper Radioactive Material Packaging. (Ciola, September 18, 2007.)

Radioactive material discovered in AZ Farm was improperly packaged. HNF-5183 (Tank Farms Radiological Control Manual), Rev. 1, Article 413, line item 2 states, "Radioactive material with sharp edges or projections should be taped or additionally protected to ensure package integrity." A radioactive material package located atop a sluice pit contains a flange cover. The item is not properly padded to prevent damage to the packaging. The package is stored atop a hard surface, increasing the potential for damage to the integrity of the container.

A-07-AMTF-TANKFARM-005-N07: Deficiencies found in Temporary Component Identification Tag program. (Williamson, September 26, 2007.)

Illegible, damaged and inadequately completed temporary component identification tags were found in AZ and AW farms. Other farms were not investigated for this issue. TFC-OPS-OPER-C-32, *Tank Farm Operations Temporary Component Identification Tags* requires monthly checks to ensure all installed tags are still legible and tags that have been replaced with permanent labels have been removed. The Temporary Component Identification Tag (TCIT) log is required to be updated monthly. In addition, operators are to be observant for and report, lost, missing, or damaged labels.

The three deficient tags that were found installed in the field were not logged in the TCIT log. They had not been replaced by a permanent label. This condition should not have existed if the requirements in the governing procedure were implemented. Once notified by the FR, the Shift Manager had the three tags removed. The TCIT program is important as a compensatory measure where the permanent labeling system has failed.

Observations:

A-07-AMTF-TANKFARM-005-O08: The Waste Package Checkout Log for WFO-WO-000757 Contained Errors. (Ciola, August 31, 2007.)

The Waste Package Checkout Log contained in package WFO-WO-000757 was inconsistent. Block A.8 stated that HEPA filters would not be disposed of, but block B.11 described the waste as containing HEPA filters and HEPA filter housings. Additionally, Waste Package Checkout Log Block B.11 requires that the estimated quantity generated per "day" or "week" is to be circled by the preparer; it was not circled as required. Similarly, the estimated length of job, "day" or "week" requires circling; it was not circled as required.

A-07-AMTF-TANKFARM-005-O09: Enhancement for U-361 Drill String Critique Identified. (Blanchard, September 18, 2007.)

TFC-OPS-OPER-C-14, Rev C, *Event Investigation Process*, implements the event investigation process to ensure significant issues are aggressively pursued and documented. Requirements for conducting Event Investigation Critique Meetings is defined in this procedure. On September 19, 2007, the sampling crew was pulling the drill string at U-361. After the work was performed, a Radiological Planner identified that the sampling crew was required to be in mask per the RWP (2S-0056 Rev 003). A critique was held that afternoon to determine the facts of the event. This critique would have been enhanced by following the guidance from TFC-OPS-OPER-C-14, Rev C, *Event Investigation Process*, as described below:

- There was not a map or photos of event site, including personnel locations provided during the meeting. A site map and photographs of the event scene would have aided greatly in recreating the event and clarifying facts.
- A timeline was not developed. There could have been two timelines developed for this event; the first one for the project and the second for the day's activities. The first timeline may have identified some human performance precursors and issues. The second one would be valuable to establish distances and times individuals were close to the drill string removal activities.

Although improvements could have been made, the critique leader did cover all other required aspects of the event critique and ensured there was an atmosphere that allowed the sampling crew to have open and forthright discussion of the event.

A-07-AMTF-TANKFARM-005-O10: General Survey Instructions for PCM-1B and self frisking not visible from the RBA. (Wright, September 24, 2007.)

In the BY-Farm change trailer (MO-299) the General Survey Instructions for the PCM-1B and for self frisking are located in an area that can not be seen while inside of the RBA. According to the Tank Farms Radiological Control Manual – HNF-5183, Article 338.8, "Instructions for personnel frisking should be posted adjacent to personnel frisking instruments or monitors." While technically the instructions could be considered adjacent, they can not be seen until after leaving the Radiological Buffer Area and do not aid personnel in performing surveys, as intended. This was communicated to the shift manager and will be corrected.

VI. Closed Finding:

C-109 HIHTLs were not visually examined for abrasion and other damage prior to reuse. (Frink, June 26, 2007.) Documented in CH2M-PER-2007-1135 has been closed.

This Finding is closed based on completion a review by the FR that ensured no existing work packages for Closure Operations were planned for re-use of HIHTLs. In addition, engineering personnel were briefed on the need to document the HIHTL inspection requirements within work packages.