U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

08-TOD-030

MAR 3 1 2008

Dr. J. G. Hwang, Project Manager
Advanced Technologies
And Laboratories International, Inc.
P.O. Box 250
Richland, Washington 99352

Dear Dr. Hwang:

CONTRACT NO. DE-AC27-05RV14548-- – U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION (ORP) ASSESSMENT OF TANK FARM PROJECT OPERATIONS, FEBRUARY 2008 (A-08-AMTF-TANKFARM-010) INCLUDING SURVEILLANCE OF AP-101 TO AW-102 WASTE TRANSFER, FEBRUARY 2008 (S-08-AMTF-TANKFARM-003)

The ORP Tank Farm Project Facility Representatives and Technical Staff conducted evaluations of the Tank Farm and 222-S Laboratory operations and activities during January 2008. The attached report documents the results of the evaluations.

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

Sincerely,

Delmar L. Noyes, Acting Assistant Manager
for Tank Farms Project

TOD:MCB

Attachment

cc w/attach:
R. R. Loeffler, ATL
K. J. Kuhl-Klinger, ATL
ATL Correspondence Control
K. T. Juroff, EM-22

Attachment
08-TOD-030

Tank Farm Project Monthly Report for February 2008
A-08-AMTF-TANKFARM-010

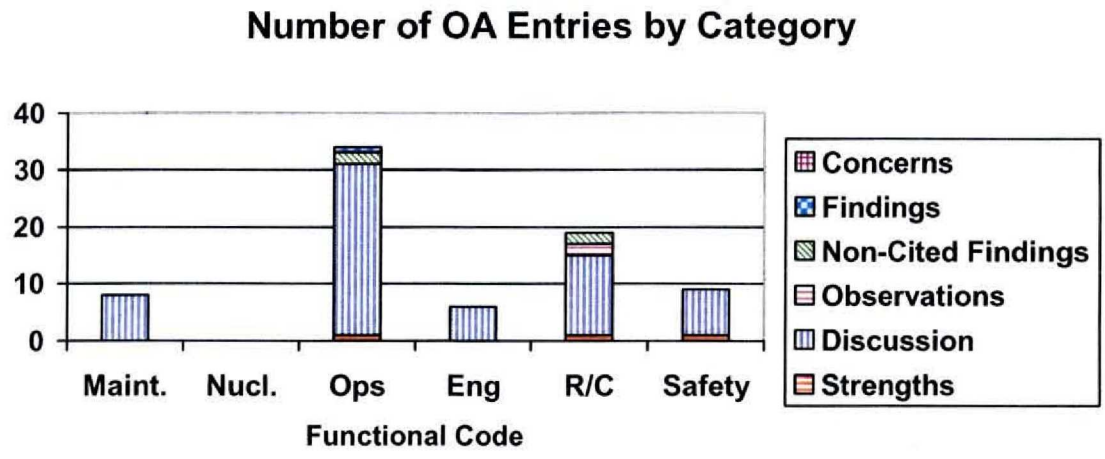
Office of River Protection

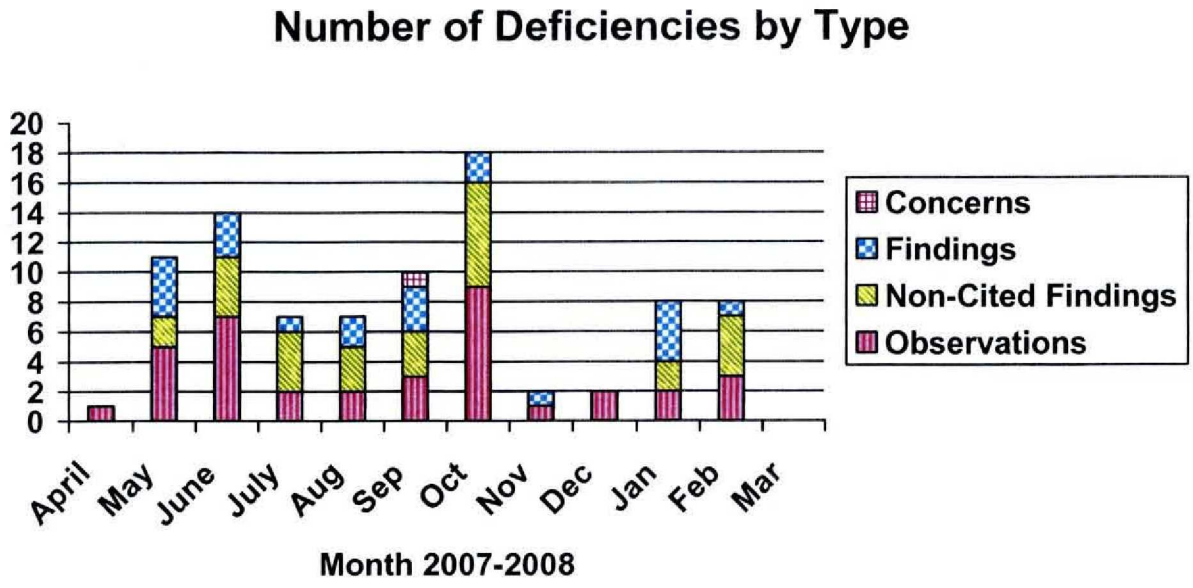
Tank Farm Project Monthly Report For February 2008

A-08-AMTF-TANKFARM-010

I. Introduction/Summary

During the month of February 2008, 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 and 222-S Laboratory. For this reporting period, 75 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. Three Strengths, one Finding, four Non-Cited Findings, and three Observations were noted during the month. These Strengths and Issues are detailed in Section IV of this report and in surveillance report, S-08-AMTF-TANKFARM-003; *AP-101 to AW-102 Waste Transfer*.





II. Analysis and Discussion

In February 2008, the ORP FR and technical staff performed 21 surveillances in areas that included Conduct of Operations, Radiological Control Practices, Industrial Safety, Integrated Safety Management, Quality Assurance, Nuclear Safety, Occupational Safety, Fire Protection, Training, and Maintenance. One surveillance conducted in February has been documented in a separate report, S-08-AMTF-TANKFARM-003; *AP-101 to AW-102 Waste Transfer.*

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 Number of Deficiencies by Type graph indicates a decrease in the quantity of issues identified in the months of November and December of 2007 followed by an increase during January and February of 2008.

The quantity and type of issues identified in February indicate the need for a continued effort in the area of operations, radiological controls, and worker safety. The number of OA Entries by Category graph shows that the majority of the issues were in the area of operations. Although improvements in isolated aspects of conduct of operations have been identified in the strengths area of this report, the report's findings and observations demonstrate that there is room for additional improvement. CH2M HILL recognizes the need to improve adherence to conduct of operations principles.

The FRs conducted the following field oversight and program reviews during the month:

- Verified closure of S-102 related corrective actions;
- Observed foldtrack demonstration at Cold Test Facility for the Level 2 Readiness Assessment;
- Observed pre-job and field work for the recirculation and transfer of waste from AP-101 to AW-102;
- Observed planning activities, pre-job, field work, and post-job for the removal of liquid waste from a plastic wrapped pipe tee identified in 219 S Cell A;
- Attended C-104 Waste Retrieval System Hazard and Operability Study;
- Participated in walk down for the removal of the heel jet pump from Riser 13 at C-104;
- Attended the C-104 Design Overview Briefing;
- Attended the JRG for C-109 Gauge Riser 3, Gauge Riser 6 and associated disposal of PVC liner;
- Attended pre-job and observed field work at C-109 to install a go-no-go gauge at Riser 006;
- Observed field work for AW seal pot work that is being accomplished on the new primary exhausters;
- Attended scheduling meeting for S-Farm Hose in Hose Transfer Line Removal, SX-Sludge Cooler Isolation and S-302 Catch tank Pump out;
- Attended pre-job and observed field work associated with the Replacement of the Inductive Couple Plasma Mass Spectrometer in Room 1L;
- Attended pre-job and observed field work associated with the installation of the S-219 S P7 replacement sump pump;
- Observed inspection and planning for the repair of the 222S Room 2B Hood No. 16 Pipe Leak; and
- Attended Lessons Learned for a defective 2704 S light fixture.

III. Injuries and Occurrences

During the month of February 2008, there was one Lost Work Day and no Recordable Cases.
Lost Work Day:

- While moving bags of powered air purifying respirator blower units, an employee felt a pop in the shoulder. The employee was treated at AdvancedMed Hanford and initially returned to work with restrictions that did not impact routine duties. Due to continuing medical treatment and days away from work, the case is classified as a Recordable Lost Workday.

There was one occurrence report issued during the month of February 2008:

On February 2, 2008, during routine surveillance, personnel reported observing a white substance in a catch pan below the condensate pumps (P-001/P-002) in AZ-301 pump building. The health physics technician dispatched by the shift office to investigate the white substance found contamination levels of 60,000 dpm/100cm2 beta/gamma; no alpha detected.

This building is a locked facility but is not controlled as a radiological area. As a result of identifying contamination >50,000 dpm/100cm2 beta/gamma outside a radiological area, this occurrence was categorized as a 6B(3) SC-3.

IV. Strengths and Deficiencies

STRENGTHS

The dayshift Operations Engineer (OE) was well-prepared and utilized time delays to further prepare responsible Tank Farm Contractor (TFC) personnel (Ron Ciola - February 22, 2008)

Although the start of the transfer was delayed for several hours, the OE used the time to better prepare the operations personnel and technicians for the transfer. He met with groups of operations personnel to discuss their duties and better familiarize them with the procedure. The result was a well prepared and organized pre-job brief where roles and responsibilities were discussed in an interactive manner and knowledge of the operators and technicians became clearly evident.

Required Tank Farm (TF) surveys were conducted with excellence (Chris Sorensen – February 23, 2008)

One FR accompanied a Health Physics Technician (HPT) and an Industrial Hygiene Technician (IHT) during their respective survey and monitoring activities in the tank farms. The HPT was careful to communicate to the FR what he was doing and why. He was knowledgeable, conscientious and thorough. He used a Geiger-Mueller (GM) for its audible capabilities as well as an RO-20, and was careful to use the RO-20 open window. He knew the locations that he was to survey per the Radcon Monitoring Plan. He checked his RO-20 for operability both before and after surveying and carried his task sheet with him. Other HPTs were observed and interviewed earlier in the transfer who also were knowledgeable and conscientious. They collectively displayed positive attitudes and a good sense of ownership. One IHT observed was very knowledgeable of tank farms, various monitored vapors, and his survey locations. He also carried his data sheet with him. He surveyed all work locations, VCZs, and the exhaust stacks in accordance with the Industrial Hygiene (IH) Monitoring Plan. The FR randomly checked various IH instruments for current calibration and all were within due dates. The FR and IHT were accompanied by the Waste Feed Operations (WFO) Health and Safety Manager who was present for a backshift management observation.

Defective 2704 S light fixture shared as Lessons Learned (Courtney Blanchard – February 26, 2008)

On February 5, 2008, a 222-S electrician received an electrical shock while replacing a fluorescent light bulb in 2704S. The light fixture was taken to the 222-S Electrical Shop where a complete analysis was performed by a 222-S Electrical Engineer, the CH2M HILL Electrical Safety Subject Matter Expert, Project Chief Steward for Electrical, Operations Director, and several HAMTEC representatives. The thorough analysis identified the cause of the shock and lessons learned from the event that were shared in a comprehensive lessons learned. The FR noted that this event could have been blamed on an old light fixture, manufactured in 1956, but the investigative team was focused on learning the root cause and developing process improvements to preclude reoccurrence.

FINDINGS

Supplemental lighting had been installed in various areas for the AP-101 to AW-102 transfer but was not being used at night (Chris Sorensen – February 23,2008)

See Finding S-08-AMTF-TANKFARM-003-F1 of surveillance report S-08-AMTF-TANKFARM-003; *AP-101 to AW-102 Waste Transfer.*

NON-CITED FINDINGS

A-08-AMTF-TANKFARM-010-N01; Lack of procedural control for small caustic leaks during caustic addition at AY-101 (Ron Ciola – January 25, 2008)

When transferring Sodium Hydroxide (NaOH) to AY-101, a slow drip occurred at the tanker truck connection due to an unseated o-ring. Although the procedure required shut down of the transfer if a spray leak was detected, the procedure failed to address acceptable leak rate criteria for non-spray leaks, and any additional actions required upon their detection. The drip was collected within the secondary containment and the cause of the leak was corrected prior to connection to the next tanker truck.

A-08-AMTF-TANKFARM-010-N02; One radiological posting was identified that is not in compliance with the Tank Farm Radcon Manual (Chris Sorensen – February 13, 2008)

Requirement: Signs shall contain the standard radiation symbol colored magenta or black on a yellow background.

Discussion: During walkdowns of radiological areas, one Underground Radioactive Material Area posting on the BX Farm south vehicle gate was found with the radiation symbol faded such that it was white in color. This was reported to the Closure Operations (CO) Shift Manager (SM) who initiated a Problem Evaluation Request (PER). The FR notes that dozens, perhaps hundreds, of postings were inspected during these walkdowns and this was the only one observed to be in this condition.

A-08-AMTF-TANKFARM-010-N03; One radiological barrier was identified that was not in compliance with the Tank Farm Radcon Manual (Chris Sorensen – February 13, 2008)

Requirement: Rope, tape, chain and similar barriers used to designate the boundaries of posted areas should be yellow and magenta in color.

Discussion: A Contamination Area/Radiation Area (CA/RA) was identified behind the 242-S Evaporator that utilized metal fencing painted yellow as a barrier. The WFO Radcon Manager provided a Technical Equivalency Determination (TED), TFC-TED-00-007, to the FR that specifically discussed faded barriers and use of a silver chain in lieu of a yellow and magenta chain. TEDs are allowed by the TF Radcon Manual to address requirements where the word "should" is used, and this one appears to have been processed in accordance with Radcon Manual requirements. This satisfactorily addresses the large number of faded yellow and magenta chains and use of silver chains, around some radiological areas that the FR identified during various walkdowns. However, this TED does not discuss the use of yellow metal fencing, as observed around the CA/RA behind 242-S, in lieu of a silver or a yellow and magenta chain and is considered a non-compliance with the Tank Farm Radcon Manual. This is especially important in this application since this fence contains gaps and is the boundary around a CA/RA.

Transfer parameters were monitored from the wrong location (Ron Ciola – February 22, 2007)

See Non-cited Finding S-08-AMTF-TANKFARM-003-N2 of surveillance report S-08-AMTF-TANKFARM-003; *AP-101 to AW-102 Waste Transfer.*

OBSERVATIONS

A-08-AMTF-TANKFARM-010-O04; Procedure lacks hazardous waste or material management instructions (Ron Ciola – January 25, 2008)

When transferring Sodium Hydroxide (NaOH) to AY-101, a slow drip occurred at the tanker truck connection due to an unseated o-ring. There was a drip pan placed under the connection. The collected NaOH was reported to have been transported off-site by the truck driver. The issue centers around whether the collected NaOH is a hazardous "material" or "waste". 40 CFR waste management and 49 CFR waste transport requirements apply to hazardous waste generation on-site and subsequent transportation off-site. These requirements include waste characterization, inventory, packaging, and documentation. If it is a hazardous material, 29 CFR and 49 CFR requirements apply for proper packaging and communication of the hazard.

A-08-AMTF-TANKFARM-010-O05; Several radiological deficiencies were identified associated with ER-311 (Chris Sorensen – February 12, 2008)

Several radiological deficiencies were identified at ER-311:

- Radiological Buffer Area (RBA) posting down on the south side of exhauster;

- Poly bottle (carboy) with radioactive material tag overturned on north side of exhauster;
- Radioactive Material Area (RMA) sign missing on the north side of exhauster;
- No RBA on north side of exhauster Contamination Area (CA) as there is on the south side. Access to the CA could potentially be from either direction; and
- A piece of long length equipment inside the ER-311 fence wrapped in yellow plastic is not labeled to indicate if it is waste or reusable equipment.

A-08-AMTF-TANKFARM-010-O06; Notification to incorrect FR during drill (Ron Ciola – February 15, 2008)

A drill was conducted on February 13, 2008. Notification was made to an on-call FR listed on an outdated revision of the On-Call Duty Roster, 07-TOD-105 R2. The FR informed the person making the notifications that he was not on-call and provided the current on-call FR's name and cell number.

V. Closed Findings: There were 4 findings closed in February 2008.

A-08-AMTF-TANKFARM-008-F04; On-call FR was not informed of a significant operational event involving the TFC's construction subcontractor (Chris Sorensen – September 19, 2007)

PER 2007-1675 was originally issued by the TFC to address this issue, but was invalidated when this finding was rolled up into the concern issued by the FRs on October 3, 2007. This concern was captured in A-07-AMTF-TANKFARM-005-C01 and was also captured in Significant PER 2007-1792. Therefore, the root cause analysis and corrective actions for this finding will be addressed in the Significant PER 2007-1792. This finding is therefore considered closed.

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

Procedural changes were made to TFC-OPS-OPER-D-01 and training conducted for shift managers to clarify notification requirements to the FRs. Post procedure change and training has resulted in FRs be notified when required. This finding is considered closed.

A-08-AMTF-TANKFARM-008-F04; Original Lockout/Tagout (LOTO) walk down not performed adequately (Courtney Blanchard – January 24, 2008)

On January 23, 2008, the 222S FR identified that the LOTO Administrator was taking credit for a previous LOTO walkdown. This was discussed with the Operations Manager who did not release the work package, reviewed all LOTO since the issuance of the Standing Order for Compliance, and conducted a meeting with all of the LOTO Administrators to ensure that they understood the Standing Order required an independent LOTO walkdown. There have been no

problems identified with compliance to the Standing Order since the corrective actions were completed and this issue is closed. This finding is therefore considered closed.

A-07-AMTF-TANKFARM-005-FO4; Improperly posted doffing instructions for Personal Protective Equipment (PPE) were found at the AY-1 change trailer. (Brandon Williamson - September 18, 2007)

A posting by the door to the AY1 change trailer incorrectly directed PPE doffing instructions prior to exiting the farm. The errant posting was removed. An extent of conditions check was performed and similar instances were not found. The deficiency was determined to be an isolated incident. This finding is therefore considered closed.

DOE-ORP Surveillance Report

Division: Tank Farms Operations Division (TOD)

Surveillants: Ron Ciola, Chris Sorensen, Brandon Williamson

Surveillance Number: S-08-AMTF-TANKFARM-003

Date: February 2008

Contractor: CH2M Hill Hanford Group, Inc. (TFC)

Location/Facility: 200 East Area Tank Farms, Waste Feed Operations (WFO)

Title: AP-101 to AW-102 Waste Transfer

Subject/Scope of Surveillance: The objective of this surveillance was to assess the TFC's conduct of operations for a waste transfer from AP-101 to AW-102. This included evaluating required RadCon and Industrial Hygiene monitoring and surveys during the transfer.

Documents Reviewed

- TO-230-005, Rev. A-0, *Recirculation and Transfer from 241-AP-101 to 241-AW-102*
- TE-07-027, *Technical Evaluation of Waste Leak Paths and Waste Leaks Due to Waste Channeling for Transfer Related Activities Associated with Tanks 241-AP-101, 241-AP-105 and 241-AW-102*
- RPP-PLAN-36002, *Radiological Monitoring Plan for 241-AP-101 Recirculation and Transfer to 241-AW-102*
- 7T300-WLA-07-026R2, *241-AP-101 Recirculation and Transfer to 241-AW-102 Industrial Hygiene Sampling and Monitoring Strategy*
- 7T600-NWK-07-008, *Basis for Performing Radiological Monitoring*
- TFC-VAR018, *Radiation Survey Task Description for Radiation Surveys and Equipment Inspections for AP-101 Recirculation and Transfer to AW-102*

Interviews

- WFO Deputy Vice-President (VP)
- WFO Shift Operations Manager
- WFO Radiological Controls (RadCon) Manager
- WFO Health and Safety (H&S) Manager

- Shift Managers (SM)
- Operations Engineers (OE)
- Health Physics Technicians (HPT)
- Industrial Hygiene Technicians (IHT)
- Nuclear Chemical Operators (NCO)

Surveillance Process:

The surveillance involved three Office of River Protection (ORP) Facility Representatives (FR) who were, on two occasions, accompanied by two DOE Richland Operations Office (RL) FRs. The surveillance consisted of a review of the above governing documents, interviews of responsible TFC personnel, observation of preparations for the waste transfer including the pre-job briefing, and observations of operations in the 271-AP control area. HPTs and IHTs were also accompanied in the field during their monitoring and survey activities. Most of these oversight activities occurred on weekends and backshifts.

Discussion of Surveillance Results:

The pre-job briefing was well done. Roles and responsibilities were covered as well as three-way communication, the transfer process, abnormal events and emergencies, with special emphasis on independent verifications. There was a great deal of dialog and interaction which indicates people were paying attention. The OE did a good job of utilizing several hours of time delays on Friday to ensure everyone was ready to proceed. Three-way communication was good. Material Balance Deficiency calculations were all independently reviewed and found to be accurate, within tolerance, and done at the correct times. One error in a transfer flow rate calculation was identified before the SM had an opportunity to review it (required by procedure) and he identified the same error a few minutes later, indicating that the TFC's process was working as it should to identify errors and correct them. Good peer checking was observed and equipment labeling was observed to be as specified in procedures. NCOs observed and interviewed were knowledgeable and conscientious. Conduct of Operations was generally considered to be good. The WFO Health and Safety Manager was present on a backshift for management observation and the WFO Shift Operations Manager was present for the first part of the transfer.

Strengths:

The dayshift Operations Engineer was well-prepared and utilized time delays to further prepare responsible TFC personnel. (Ron Ciola - February 22, 2008)

Although the start of the transfer was delayed for several hours, the OE used the time to better prepare the operations personnel and technicians for the transfer. He met with groups of operations personnel to discuss their duties and better familiarize them with the procedure. The result was a well prepared and organized pre-job brief where roles and

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Issues:

Finding S-08-AMTF-TANKFARM-003-F1: Supplemental lighting had been installed in various areas for the AP-101 to AW-102 transfer but was not being used at night. (Chris Sorensen - February 23, 2008)

Requirement: Supplemental lighting is a compensatory measure for an S-102 corrective action to provide enhanced lighting in the tank farms for night operations, largely for potential early leak detection.

Discussion: During walkthroughs of AP and AW Farms with a HPT at night, the FR noted that there was supplemental lighting installed at pits AP-01A, AP-VP, AW-02A and AW-B, but the only pit area that had its supplemental lighting turned on was AP-01A. The FR brought this issue to the attention of the OE, who was under the impression that these lights were to be turned on if someone asked for them to be, and no one had, and he was trying to minimize their operation to extend the bulb life. Sufficient lighting for observing a potential leak in the farms from the farms' fenceline was questionable, especially in AW Farm. Further, none of the TFC personnel present on backshift appeared to understand that this was the purpose for the supplemental lighting.

Non-Cited Finding S-08-AMTF-TANKFARM-003-N2: Transfer parameters were monitored from the wrong location. (Ciola, 2-22-07)
Step 5.5.3.5 of TO-230-005, Rev. A-0, *Recirculation and Transfer from 241-AP-101 to 241-AW-102*, requires checking transfer pump pressure and flow, after pump start, at

AP271-WT-ENCL-400, HMI, which is a Monitoring and Control System overview screen. However, the NCO was monitoring AP271-WT-CP-101 in what was considered to be the control area. The NCO was acquiring the correct data but at the wrong location. The OE was notified and corrected the problem for the rest of the waste transfer.

Management Debriefed: Mark Wright, Ted Jarecki **Date:** 2/28/08

Formal Response Required: Yes

Author's Signature: Chris Sorensen **Date:** 2/27/08

DOE-ORP Surveillance Report

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