



U.S. Department of Energy
~~OFFICE OF RIVER PROTECTION~~
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

DEC 11 2007

07-TOD-120

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
OPERATIONS, NOVEMBER 2007

The ORP Tank Farm Project Facility Representatives and Technical Staff conducted evaluations of the Tank Farm and 222-S Laboratory operations and activities during November 2007. The attached report documents the results of the evaluations, which identified one Strength, one Finding, and one Observation. The Facility Representatives (FRs) focused their November reviews on Conduct of Operations. This area will remain a focus for oversight in December as ORP FRs observe implementation of your Conduct of Operations improvement plan. You are encouraged to continue to devote management attention to improve implementation of Conduct of Operations principles and practices in the field.

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: See Page 2

Mr. John. C. Fulton
07-TOD-120

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DEC 11 2007

cc w/attach:

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Office of River Protection

Assessment of Tank Farm Project Operations, November 2007

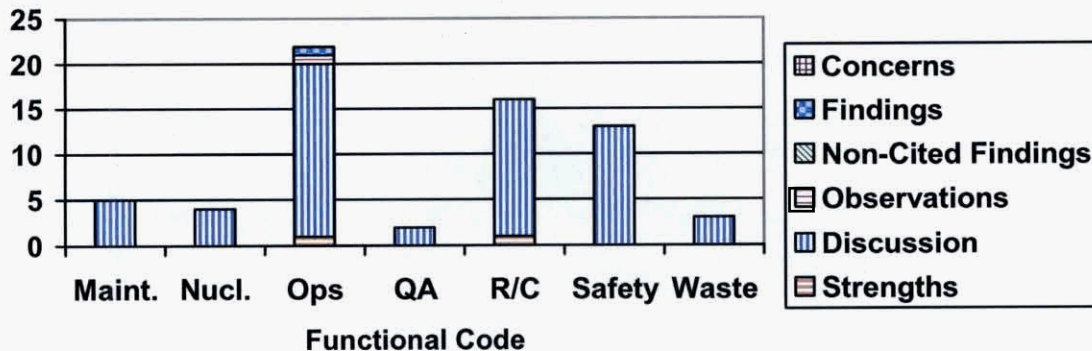
A-08-AMTF-TANKFARM-002

I. Introduction/Summary

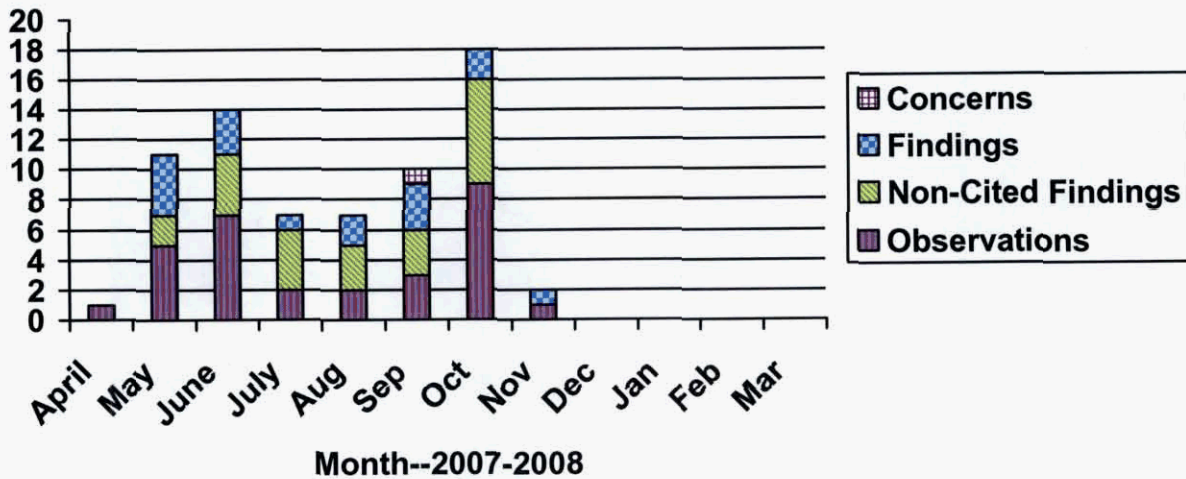
During the month of November 2007, the U.S. Department of Energy (DOE), Office of River Protection (ORP) Facility Representative (FR) and technical staff reviewed maintenance and operations at the Tank Farms (TF) and 222-S Laboratory. For this reporting period, 34 entries were made in the Operational 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, no Concerns, one Finding, no Non-Cited Findings and one Observation were noted during the month. The Strength, Finding and Observation are detailed in Section V of this report.

The focus area for the month was Conduct of Operations. The ORP FRs have identified deficiencies in operational performance since July 2007, with no significant improvement. As a result of the lack of an improving trend in Conduct of Operations, on November 21, 2007, ORP directed the Tank Farm Contractor (TFC) to develop corrective actions “to effect substantive improvement in the field implementation of conduct of operations requirements and principles.” On December 5, 2007, the TFC provided ORP with a fairly substantial conduct of operations improvement plan. The ORP FRs will continue to closely observe implementation of this improvement plan, along with observing operational performance in the field.

Number of OA Entries by Category



Number of Deficiencies by Type



II. Analysis and Discussion

In November 2007, the ORP FRs and technical staff performed 17 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 included:

- Observed calibration of ENRAFs at TX Farm;
- Attended the pre-job and observed field work through the post job review for the AW-102 sludge level measurements;
- Observed geophysical logging at the UPR-86 vadose zone investigation site adjacent to C Farm;
- Attended pre-job briefing and fieldwork for S-102 hydraulic line draining;
- Observed contractor response to the 242-A PB-1 pump inadvertent operation, including the fact finding and follow-up investigation;
- Attended pre-job brief and the installation of the lockout/tagout for repairs to a 222-S Air Handling Unit;
- Conducted a Trend Analysis of Industrial Safety Performance (ISR) since 10 CFR 851 Implementation;
- Observed construction activities at T Farm Interim Barrier site;

- Attended pre-job brief and conducted field oversight for CLO-WO-07-1340 -- S-102 Remove Contaminated Equipment around Riser-7;
- Attended pre-job briefing for the construction acceptance testing of the new MUX relays at 242-A;
- Attended pre-job briefing for performing an ISR inside the S-102 High Contamination Area/High Radiation Area (HRA) fenced boundary;
- Attended pre-job brief and conducted field oversight for C-Farm Flammable Gas Concentration Surveillances;
- Attended pre-job brief and conducted field oversight of CLO-WO-07-1837 – 241-SX, Pump Catch Tank at SX Condensate Line;
- Observed construction crew perform pressure testing of a dilution water line isolation valve assembly for the new AN-101 pump assembly;
- Attended pre-job brief and conducted oversight of work for the sampling of the S-102 Dilution Hose waste; and
- Observed S-102 Dilution Hose Waste Transfer to Sampling Containers.

III. Injuries and Occurrences

During the month of November 2007, there were no lost work day cases. Due to medical treatment, an October First Aid Case became a recordable injury in November.

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

- **242-A Evaporator Recirculation Pump PB-1 Inadvertently Started And Operated Without Seal Water (EM-RP--CHG-TANKFARM-2007-0014)** On November 9, 2007, during Monitoring Control System (MCS) upgrade work at the 242-A Evaporator, a failed MCS relay caused recirculation pump PB-1 to inadvertently start and operate without seal water. A fact finding identified two issues: 1) a failed MCS relay was able to start the pump, and 2) the vendor found 11 failures out of 200 relays that were bench tested. Evaporator operations were stopped and an administrative lock was placed on the supply breaker for the recirculation pump to prevent operation until an engineering evaluation of the potential damage to the pump is completed. This was categorized as Group 10(2) SC-3, "Management Concern".

IV. Monthly Focus Review for November: Conduct of Operations

In July 2007, ORP FRs observed a negative performance trend in Radiological Control work practices and in Conduct of Operations. Since that time an increased emphasis was placed on oversight in these areas. During the month of October some improvement was noted in the area of radiological control work practices partially due to the Radiological Control first line supervisors setting expectations and enforcing requirements. Field performance problems noted in the area of Conduct of Operations required further FR observation.

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

Scope:

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

Results:

Conduct of Operations

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

- Attended pre-job brief and conducted field oversight for C-Farm Flammable Gas Concentration Surveillances;
- Attended pre-job brief and conducted field oversight for CLO-WO-07-1340 - S-102 Remove Contaminated Equipment around Riser-7;
- Observed contractor response to the 242-A PB-1 pump inadvertent operation, including the fact finding and follow-up investigation;
- Attended Control Decision Meeting on S-102 with respect to waste transfer accident scenarios;
- Attended pre-job and conducted oversight of work for the sampling of the S-102 hose waste;
- Observed S-102 Hose Waste Transfer to Sampling Containers;
- Attended PB-1 replacement planning meeting;
- Reviewed TE-07-017, "*Technical Evaluation for Pressurizing/Channeling within Waste Solids by Operation of Weight Factor Dip Tubes in 244-S Double-Contained Receiver Tank (DCRT)*";
- Attended pre-job brief and the installation of the lockout/tagout for repairs to a 222-S Air Handling Unit;
- Observed calibration of ENRAFs at TX Farm;
- Attended the pre-job brief and observed field work through the post job review for the AW-102 sludge level measurements;
- Attended fact finding for non-use of procedures for calibration of ENRAFs at TX farm;
- Reviewed Unreviewed Safety Question screening and engineering evaluation of a riser cap removal tool used for the AW-102 sludge level determination job;
- Reviewed the Conduct of Operations Implementation Plan/Matrix (TFC-PLN-05) and the TFC procedure for Operating Logbooks, TFC-OPS-OPER-C-17;
- Reviewed Waste Feed Operations shift log in the shift office and the logbook kept at TMACS;

- Attended Team Planning Meeting for C-104 Loosen Heel Jet Pump (CLO-WO-07-733);
- Observed geophysical logging at vadose zone direct push site at UPR 86;
- Conducted a walk down of the T Farm Interim Barrier construction site;
- Attended pre-job brief and conducted field oversight of CLO-WO-07-1837 – 241-SX, Pump Catch Tank at SX Condensate Line;
- Conducted a walk down of the TX/TY Farm Surface Geophysical Exploration (SGE) site;
- Attended pre-job briefing and fieldwork for S-102 hydraulic line draining; and
- Attended JRG for Removal of contaminated equipment within the HRA at S-102.

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

Strength: Exceptional Implementation of Integrated Safety Management System (ISMS) During S-102 Liquid Waste Handling. (Courtney Blanchard, November 28, 2007.)

Finding: ENRAF Calibration Performed Without Continuous Use Procedure Present And Open, As Required. (Rob Yasek, November 7, 2007.)

Observation: Electric Motor Control Center (MCC) Labeling Deficiency Observed (Courtney Blanchard, November 15, 2007.)

Conclusion:

The focus area for the month was Conduct of Operations. The TF Project Monthly Report for October identified field performance problems in the area of Conduct of Operations which indicated inadequate implementation of existing requirements and inattention to detail. Direct, continuous management involvement is needed to communicate and enforce expectations with the workforce. The ORP FRs will continue to closely observe implementation of the Conduct of Operations improvement plan, along with observing operational performance in the field.

V. Strengths and Deficiencies

Strength:

Exceptional Implementation of Integrated Safety Management System (ISMS) During S-102 Liquid Waste Handling. (Courtney Blanchard November 28, 2007.)

The 222 S Laboratory staff demonstrated exceptional ISMS implementation during the transfer of S-102 highly radioactive liquid waste from a 30 gallon drum to multiple sample storage containers. The planning meeting included discussions of the hazards, hazard controls, lessons learned from mock-ups, and implementation of As Low As Reasonably Achievable (ALARA) controls for the work. Mock-ups were performed for every phase of the work and lessons learned from these mock-ups were integrated into the work package. This meticulous planning effort and the feedback from mock-ups resulted in the implementation of several improvements, including the use of extension tools (tongs and bottle cap removers) to keep the operator as far

from the sample as possible, the use of remote instrumentation to reduce the staff in the laboratory room, placing radioactive sample containers immediately in shielded slip cans and then promptly removing them from the room, and perfecting ALARA work activities such as stepping back away from the work area (hood) as much as possible and becoming proficient at performing work steps through practice. This exceptional ISMS effort provided the skills, tools, process, and knowledge for the 222 S Laboratory Chemical Technicians to fill 31 sample containers with highly radioactive waste (up to 9600 mrem/hour corrected on contact and 20 mrem/hour at 30 cm gamma) while receiving only 8.5 % of the original estimated cumulative dose (actual total dose 23 person-mrem - planned 272.75 person-mrem).

Finding:

A-08-AMTF-TANKFARM-002-F01: ENRAF Calibration Performed Without Continuous Use Procedure Present And Open, As Required. (Rob Yasek, November 7, 2007.)

Requirement: TFC-OPS-OPER-C-13, Rev F-5, July 18, 2007, "Technical Procedure Use and Control" requires that continuous use procedures are present and open to the applicable sections and steps for activities for which they are written. TF Maintenance Procedure 5-LCD-300, Rev G-6, September 27, 2007, "ENRAF Series 854 Displacer Weight Check and Calibration Check and Obtain Sediment Levels" is the procedure covering the activity observed and is a continuous use procedure.

Discussion: The FR entered TX farm to observe regular preventive maintenance of ENRAF instruments at 241-TX-101, 107 and 108. The FR met two Instrument Technicians (ITs) and a Health Physics Technician (HPT) at the ENRAF for 241-TX-107, where the technicians had just raised the ENRAF displacer after stating that they had already raised the displacers at TX-101 and TX-108 as well. The technicians looked for and could not find a copy of the procedure covering the activity they were performing. Work was halted by the technicians and one of the ITs then exited the TF and returned to MO-850 to retrieve a copy of the procedure. The remaining IT, HPT and the FR then waited in the TX/TY change trailer for the IT to return with the procedure. The IT received a call from the FWS directing them to halt work, confirming that the instruments were left in a safe configuration, and to return to MO-850. A fact finding held later that day confirmed these events and also determined that the ENRAF calibration had been performed at TX-101 without a copy of the procedure present.

The facility requirements for use of procedures are documented and have been made clear to all TF personnel. The requirement for possession and use of procedures to perform work is in place to ensure uniformity and safety in the completion of tasks. Tasks that have been performed routinely, such as those performed here, are subject to human error and procedure use is implemented as a hazard control to protect workers and facilities. This failure to use procedures in the performance of work for which they were written demonstrates complacency and poor implementation of conduct of operations requirements.

Observation:

A-08-AMTF-TANKFARM-002-002: Electric Motor Control Center (MCC) Labeling Deficiency Observed. (Courtney Blanchard, November 15, 2007.)

The FR observed an inconsistency with the 222-S Laboratory MCC-1 and MCC-2 labeling. On November 14, 2007, workers were performing required lockout/tagouts to support repair work on an air handling unit heating coil. While an electrician was locking out a breaker on MCC-2, the FR noted that the main MCC-2 breaker was not labeled. After further review, the FR observed that the MCC-1 main breaker was labeled "Incoming Line," rather "Main CB," as specified on Drawing H-2-74852, *Single Line Diagram*. As a result, the 222-S Operations Director requested an extended review be performed for both MCC-1 and MCC-2 to ensure that all breakers were labeled per Drawing H-2-74852.

VI. Closed Finding:

No findings were closed in November.