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

06-TOD-008

FEB 0 2 2006

Mr. Victor M. Pizzuto,
Vice President for Nuclear Operations
CH2M HILL Hanford Group, Inc.
Richland, Washington 99352

Dear Mr. Pizzuto:

CONTRACT NO. DE-AC27-99RL14047 – U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION (ORP) TANK FARMS OPERATIONS DIVISION (TOD) QUARTERLY REPORT COVERING TANK FARM CONTRACTOR (TFC) OPERATIONS DURING FIRST QUARTER OF FISCAL YEAR (FY) 2006

The ORP TOD Facility Representatives and Technical Staff conducted evaluations of the CH2M HILL Hanford Group, Inc., Tank Farm operations during October, November, and December 2005. The attached quarterly report documents the results of the evaluations conducted in four subject areas: Worker Involvement in Work Planning, On-the-Job Training, and Operations Organization/Resources.

If you have any questions, please contact me, or your staff may contact Ken Wade, Acting Director, Tank Farms Operations Division, (509) 373-9961.

Sincerely,

T. Zack Smith, Assistant Manager
for Tank Farms Projects

TOD:MCB

Attachment

cc: See Page 2

cc w/attach:
C. E. Anderson, CH2M HILL
J. J. Badden, CH2M HILL
E. E. Bickel, CH2M HILL
M. N. Brosee, CH2M HILL
R. A. Dodd, CH2M HILL
K. C. Dorwick, CH2M HILL
J. A. Eacker, 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
S. M. Sax, CH2M HILL
CH2M Correspondence Control
T. E. Krietz, EM-5
K. T. Juroff, EM-44

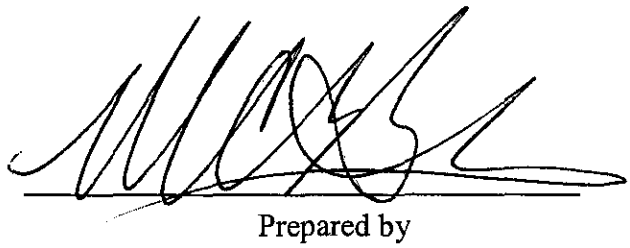
Tank Farms Operations Division Quarterly Report

First Quarter
October, November, December, 2006

ORP MISSION

Retrieve and treat Hanford's tank waste and close the tank farms to protect the Columbia River.

U.S. Department of Energy
Office of River Protection
Tank Farms Operations Division
Quarterly Report First Quarter
October, November, December 2005



Prepared by
Mark C. Brown, Facility Representative
Tank Farms Operations Division

Facility Representatives
C. A. Blanchard
M. C. Brown
J. B. George
B. J. Harp
R. C. Sorenson
G. D. Trenchard
K. G. Wade
B. I. Williamson

Technical Staff
J. D. Long
C. O. Olaiya
M. J. Royack
H. J. Stafford
A. J. Stevens

Table of Contents

1. EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE), Office of River Protection (ORP), Tank Farms Operations Division (TOD) Facility Representatives (FR) and Technical Staff, completed scheduled and reactive surveillances of the CH2M HILL Hanford Group, Inc. (CH2M HILL) managed River Protection Project (RPP) facilities during the months of October, November, and December 2005. The evaluations conducted during the quarter were focused on evaluating contractor continuous improvement in the following areas: Worker involvement in work planning through work execution, on-the-job training, and operations organization/resources. Below is a summary of the results; detailed results are provided in Section 2.0 of this report.

Strengths

- The hot water station at SY Farm has postings that are good reminders of emergency contact information.
- The response from the Closure Shift Manager to the housekeeping issues identified, behind the carpenter shop, was timely and very professional. He investigated and kept the FR informed of the status of the clean-up process.
- The pre-job brief for the SY-102 Caustic Addition was well conducted.

Worker Involvement in Work Planning:

FRs observed various aspects of work planning and work execution during the quarter, including two As Low as Reasonably Achievable (ALARA), ALARA Joint Review Group (AJRG) meetings, numerous pre-job briefings, and numerous instances of field work execution. In general, FRs observed good worker involvement in the work execution process, including participation in pre-job briefings. Some areas of improvement were identified and included the need for continued emphasis in the areas of: 1) worker involvement in work planning, and 2) Job Hazard Analysis (JHA) and Job Safety Analysis (JSA) compliance. The FRs will continue to monitor contractor efforts in these areas.

On-the-Job Training:

Contractor performance in the area of On-the-Job Training (OJT) was determined to be adequate. OJT was performed under the direct supervision of qualified personnel, and was conducted in accordance with procedural requirements. Although no specific deficiencies were identified in this area, the FRs did identify an opportunity for improvement: Subcontractor training, specifically the S-112 high water pressure training, would have benefited by a CH2M HILL training department review prior to delivery of the training.

Operations Organization/Resources:

Contractor management has systems in place to identify work important for safety, Technical Safety Requirement (TSR), Operating Specifications Document (OSD), and Environmental compliance with ample time to complete that work. Despite this, FRs have determined some important work is not being performed when needed due to a lack of resources, or to the lack of adequate prioritization of the work to ensure that the existing resources are applied to that work. Work associated with Performance Based Incentives (PBI) was performed at the Tank Farms and got the resources necessary (often large numbers for extended durations) at the cost of denying resources to the types of jobs described above. Tank farm contractor management must prioritize work to ensure that the resources are available to ensure the facilities are safe for the workers and the structures and equipment are available for the mission.

2. QUARTERLY PERFORMANCE EVALUATION

Review Scope and Method

The ORP FRs completed evaluations of the CH2M HILL managed facilities during the first quarter of FY 2006, covering the months of October, November, and December 2005. The evaluations conducted during the quarter were focused on evaluating contractor continuous improvement in the following areas:

- Worker Involvement in Work Planning (through work execution)
- On-the-Job Training
- Operations Organization/Resources

The results of the FR reviews were provided to CH2M HILL management periodically during the quarter both verbally and via the Tank Farm FR Weekly Reports. The FR issues identified in these reports were also discussed with CH2M HILL management at the monthly interface meetings conducted on November 7, 2005, and January 9, 2006. Refer to section 3.0, *Facility Representative Issues*, for a listing of FR issues identified during the quarter.

Evaluation Results

Worker Involvement in Work Planning:

The FRs reviewed work planning and work execution in various tank farms and related construction sites, the 222-S laboratory, the 242-A evaporator, and tank farm related areas outside the farms. Specifically, FRs observed work involving inhibited water flushing of SL-167, foam application and painting at EW-151, various activities at C-103, various activities at the C-200 tanks, videoing activities at 6241-A and 6241-V, Salt Mantis/Remote Water Lance

activities, Hose-in-Hose-Transfer Line removal in SX Farm, 242-A ventilation system filter changeout, C-201 retrievals, caustic additions to SY-102, AN-101 construction work, jumper removal at 244-A, and installation of primary and annulus breather filters at 244-BX Double Contained Receiver Tank (DCRT).

FRs observed some work planning meetings during the quarter, including two AJRG meetings and numerous pre-job briefings (along with observing work execution in the field). In general, FRs observed good worker involvement in the work execution process, including participation in pre-job briefings. This was exemplified by a Strength identified by a FR in this area, in which pre-job briefings for caustic additions to SY-102 were noted to be well conducted. Worker job assignments were established at the beginning of briefings, workers were actively involved, and the briefing was interactive due to both the Field Work Supervisors (FWS) asking questions of the workers and the workers actively providing input. Good teamwork was also noted by the FRs on various other occasions, such as a C-202 decontamination activity observed on October 14, 2005.

However, three issues were identified by the FRs during these observations. One involved chemical hazard controls specified in the JHA for flushing SL-167 with inhibited water. The controls had not been implemented in the field. The controls were not discussed in the work instructions, workers did not adequately review the JHA and the controls were not adequately discussed in the pre-job briefing. Consequently, there was confusion among the workers after the pre-job briefing as to how Personal Protective Equipment (PPE) for chemical exposure applied to each worker involved in the job. Only one worker (of three involved) was wearing the required PPE. Other FR reviews during the quarter revealed similar examples of not following JHA requirements. During installation and aerosol testing of the C-103 breather filter, a requirement from the JHA to obtain an industrial hygiene breathing zone mercury sample from one individual on the work team was not met.

The second issue involved weakness in, and failing to follow, a JSA for applying hazardous substances to the EW-151 pit cover. The JSA developed during the planning process did not adequately specify respiratory protection requirements for application of foam and coating materials. The requirement was not understood by the FWS and was not discussed during the pre-job briefing. Consequently, workers were not aware that they were required to wear a respirator for application of the coating material.

The third issue dealt with a work planning weakness identified during an AJRG meeting to consider a work package for a jumper changeout at the AW-B valve pit. Numerous (56) different deficiencies with the work package were identified by the AJRG, some of which were significant. While the FR observed good worker attendance and involvement in the AJRG meeting itself, this indicates a lack of sufficient worker involvement during the work planning process to write an accurate and defensible work package.

In conclusion, based on FR observations during the quarter, workers are generally, appropriately involved in work planning and execution. However, improvements in JHA/JSA compliance are needed and further observation in this area by the FRs is warranted.

On-the-Job Training:

The FR observed on-the-job training for a C-201 control room operator, 222-S facility operations manager, and S-112 remote water lance subcontractor high pressure water system. Additionally, in the area of training a review of the maintenance craft qualification requirements was evaluated. The following discussions address the FRs observations and reviews:

- FRs observed C-201 vacuum retrieval system operations that included on-the-job training of a control room operator/trainee. The trainee was operating the system under the direction and supervision of a qualified operator. Procedure steps and expected system responses were discussed with the trainee before and after operating the equipment.
- FRs observed the contractor's response to a fire alarm in MO-037, adjacent to 222-S Lab. The qualified Facility Operations Manager (FOM) took charge of the response to the alarm; the FOM trainee was not permitted to take action. This was consistent with existing procedures for on-the-job training and no deficiencies were identified.
- FRs observed the training for high pressure water used by the S-112 remote water lance. The subcontractor that operates the remote water lance gave the training to all personnel involved with the operation or maintenance of the S-112 remote water lance. Graphic pictures of high pressure accidents and work precautions were reviewed. Several questions were asked and the instructor answered them knowledgably and thoroughly. The FR identified one enhancement for this training: to include enabling objectives and some type of evaluation to attest that the audience adequately understood the material. This was reviewed with the trainer as well as the CH2M HILL Training Manager. The CH2M HILL training requires an established format for training which includes enabling objectives and a method to assess the proficiency of the students. This ensures students understand what was to be taught during the class and understood the presented material. This training was determined to be adequate.
- The FRs reviewed with the Closure Project Maintenance Manager the type of on-going training the maintenance staff received. The maintenance manager explained that maintenance craft were trained in the skill of the craft by completion of an accredited apprenticeship program or through work experience equal to or greater than the approved term of apprenticeship in the craft discipline. There is not presently a scheduled continuing training for craft other than required refresher training for some crafts. In the past there were quarterly training classes that all maintenance staff attended. The Closure Project Maintenance Manager stated that the quarterly training had been replaced with training requested by the craft. Examples of requested training in 2005 included: variable frequency drive training for electricians, and programmable logic controller training for

instrument technicians. Pipefitters, painters, and insulators have requested system overviews prior to working on systems and this has been done. Additionally, some journeymen craft were required to attend union-sponsored training and take yearly state issued tests. The current on-going training program was determined to be adequate, provided the craft remain cognizant of their training needs, share this information with management, and management continues to favorably respond to the craft training needs.

Conclusion: Contractor performance in the area of OJT was determined to be adequate. OJT was performed under the direct supervision of qualified personnel, and was conducted in accordance with procedural requirements. Although no specific deficiencies were identified in this area, the FRs did identify an opportunity for improvement: subcontractor training, specifically the S-112 high water pressure training, would have benefited by a CH2M HILL training department review prior to delivery of the training.

Operations Organization/Resources:

For the focus area of operations resources, FRs looked at what kinds of work did and did not get done, their significance, and whether the cause was attributable to a lack of resources. This review did not look in detail at any particular job, but rather at the significance of jobs that were not performed that were attributed to a lack of resources or the prioritization to obtain the needed resources. The discussions below are not intended to be all encompassing, but do intend to show representations of issues that were noted.

Management tools are in place for monitoring operations performance in a wide variety of areas to give contractor management the information they need to apply resources where they are needed. Some examples of these tools include the following:

- The Tank Farm Contractor's Performance Indicators establish operating goals and track status to achieve those goals;
- The Daily Report provides a tool for tracking safety or environmental systems which are out of service;
- Operations management has implemented a crew system in an attempt to maximize the efficient use of available human resources; and
- The Problem Evaluation Request (PER) reporting system regularly informs management of recent issues and can provide problem trending information.

Reviewing the information in the above mentioned tools and other sources yielded a mixed result regarding how operations resources are used. Both the positive and the negative aspects of resource utilization are discussed below.

The contractor has made significant progress in the area of maintaining Technical Safety Requirement (TSR) exhaust ventilation systems, including their redundant systems (or "trains"), operable.

The contractor has clearly changed strategy on how resources were to be applied towards the maintenance of these systems. Prior to this change, the maintenance on ventilation trains would largely be deferred when redundant systems were operating. This past practice had led to cases where inoperable ventilation impacted both operations and the safety posture at the tank farms. At the beginning of the Fourth Quarter, FY 2005, 5 issues affecting 3 Double Shell Tanks (DST) ventilation trains were tracked on the Daily Report as TSR equipment out of service. Two systems (SY and 702-AZ) were not operable; both trains were down. At the end of the quarter, only one DST ventilation system train was unavailable and all of the other ventilation systems were operable or operating.

Additionally, management planning to ensure that qualified human resources are available at the 242-A evaporator is evident. Recent personnel dismissals and the potential for future layoffs could impact staffing at this facility to a level where operations could not occur. A cold run of the facility is scheduled for this winter with the intent of giving current 242-A operator candidates some hands-on time as a final step in their qualifications, and to keep currently qualified personnel proficient. Operations management is also preparing a new cadre of 242-A operator candidates with qualification classes scheduled to begin this spring. These activities ensure the resources are available to support future operations.

FRs have noted that a lack of resources, or low prioritization to get those resources, continued to be cited as a cause for the inability to accomplish important work in a timely manner.

Work such as life safety preventive maintenance and work to maintain equipment within operating limits are among the type of work not being performed in a timely manner. Some specific examples of this are:

- An ORP Fire Protection Program Assessment, completed in December 2005, found that emergency lighting inspections were closed out without the inspection being performed due to "insufficient resources". These inspections are tied to Life Safety Code requirements. *Ref: A-06-AMTF-TANKFARM-001 Finding FP.2-F-2.*

- Several DST leak detection pits with levels exceeding the OSD limits (in some cases the design limit) are in need of pumping. The issue has been tracked on the contractor's daily report for years, but resources have not been applied to get the job done. The planned completion date has been pushed back multiple times. For example, the SY pits were to be pumped by September 6, 2004; this date was changed to September 30, 2005 in PER-2004-2726, then extended to October 30, 2005, and then to January 30, 2006. Only one pit of the

six needing to be pumped has been pumped out. The reason cited for continual deferral of this work has consistently been operations resource availability. Specifically, PER-2004-2726 states the reason for the extension was "due to level loading of resources and priority established by management. Higher priority work includes 242-A filter change and SY filter change." Continued deferral of this work increases the exposure to corrosion which has the ability to reduce the service life of these DSTs.

- Maintenance of DST exhaust ventilation systems, TSR equipment, has long been an issue. Significant recent progress has been noted in this area (see above), yet the remaining issue, the SY-A train, has been in need of a High Efficiency Particulate Air (HEPA) filter replacement since January 20, 2005.

- Ventilation at the 242-A Evaporator was out of service on August 28, 2005 due to differential pressure issues with the exhaust filters, yet the job to replace those filters did not get to the fieldwork stage until late November 2005. Although there were multiple reasons for this deferral, resource availability was one reason cited. The inability to perform this work until late November resulted in a risk of freezing conditions in the evaporator hot side rooms and impacted the ability to perform pre-campaign work activities such as the combustible material removal job.

- The following description of an ongoing air compressor issue at 242-S is from PER 2004-5558. *The instrument air system serving 242-S and SY Farm has been supplied by diesel-driven temporary compressors without benefit of an air dryer since 1999. Efforts to install replacement electric compressors has continually been bumped from the schedule by higher priority work. As a result of using the temporary compressors for such an extended period, the instrument air system piping is saturated with oil & water, compromising instrumentation supplied by this system and forcing Operations personnel to attempt to "blow down" air supply hoses through a low-point drain. This has proven to be largely ineffective.* This PER was closed in November of 2005, yet the work has not been completed in the field. ORP FRs reported the issue of condensate and oil in the air system due to lack of filters and an air dryer to the contractor in November 2003.

- Sampling of tank AP-108 to support the understanding of evaporator slurry chemistry was delayed on December 29, 2005, and several later dates due the lack of priority to get a needed Pipe Fitter, who was working a job at the 244-A filter pit.

In conclusion, contractor management has systems in place to identify work important for safety, TSR, and OSD compliance with ample time to complete that work. Despite this, some important work is not being performed when needed due to a lack of resources, or to the lack of adequate prioritization of the work to ensure that the existing resources are applied to that work. Work associated with PBIs was performed at the Tank Farms and got the resources necessary (often large numbers for extended durations) at the cost of denying resources to the types of jobs

described above. Tank farm contractor management must prioritize work to ensure that the resources are available to ensure the facilities are safe for the workers and structures and equipment are available for the mission.

3. FACILITY REPRESENTATIVE ISSUES

The following is a listing of the FR issues identified during this reporting period.

- (PER-2005-3490) The High Contamination Area (HCA) barrier on the north-east corner of AX Farm had fallen down - two stanchions were down and the chain was in the dirt. The chain was a grey one making the boundary harder to recognize. The HCA surrounds a piece of equipment that is wrapped in yellow poly. The wrap is degraded and over time, sand has started to bury the equipment. (G. Trenchard, October 3, 2005).
- (PER-2005-3540) On the eastside of AN Farm, the old construction entry point has PPE and materials not cleaned up when the entry point was closed. The Waste Feed Ops Shift Manager was informed. (J. George, October 12, 2005).
- (PER-2005-3688) Chemical hazard controls were not adequately implemented during the inhibited water flush of SL-167. (G. Trenchard, B. Williamson, October 14, 2005).
- (PER-2005-3690) Weakness in work planning was indicated by the AJRG identifying 56 deficiencies in a work package for a jumper changeout at the AW-B valve pit. Some of these deficiencies are significant. (R. Sorenson, October 14, 2005).
- (PER-2005-3691) C-201 Configuration Management Issues Impact Production and has Potential Quality Assurance Implications (C. Blanchard, October 18, 2005).
- (PER-2005-3800) Weakness identified in the JSA for Versifoam and TopCoat application on EW-151 pit cover. (R. Sorenson, October 27, 2005).
- (PER-2005-3860) Severely degraded alarm response signs were found on the 702-AZ building and the generator building. The signs are effectively illegible even immediately in front of the sign. The sign posts actions to take upon activation of the horn and light associated with a stack Continuous Air Monitor alarm from the primary 702-AZ ventilation system which would indicate a radiological release.(B. Williamson, R. Sorensen, November 1, 2005).
- (PER-2005-4147) Waste Feed Operations management had not prepared adequately to ensure that the 242-A evaporator hot-side rooms were protected from freezing during the K-1 ventilation system outage for HEPA filter replacement. (B. Williamson, December 8, 2005).
- (PER-2006-0075) DOE-ORP staff determined that the 242-A Evaporator PB-1 pump seal water needle valve handle was fixed in place using non-standard equipment (hose clamp). (D. Bryson, B. Williamson, September 6, 2005; Note: this issue was identified through the ORP Management Walkthrough Program, and was not provided via the FR Weekly Reports)