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Department of Energy
Richland Operations Office
P.O. Box 550
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00-ORL-025

FEB 3 2000

Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
P. O. Box 47600
Olympia, Washington 98504

RECEIVED
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EDMC

Dear Mr. Wilson:

TRANSMITTAL OF FIRST QUARTERLY REPORT FOR FISCAL YEAR 2000 IN
SUPPORT OF THE SINGLE-SHELL TANK (SST) INTERIM STABILIZATION CONSENT
DECREE

In reference to the Consent Decree, No: CT-99-5076-EPS between the State of Washington Department of Ecology and the U.S. Department of Energy, dated September 30, 1999, the attached report, same subject as above, is being sent to you in accordance with the reporting requirements. An additional 111,000 gallons of waste, including 78,000 gallons of organic waste, has been transferred in this quarter. The total waste transferred for the project through December 31, 1999, was 590,000 gallons. In summary, all of the Consent Decree commitments for this quarter have been met, and the program is on schedule with the future Consent Decree commitments.

In addition, one additional tank, Tank 241-T-104 has been Interim Stabilized meeting all the criteria for Interim Stabilization. Tanks 241-T-110, 241-SX-104 and 241-SX-106 are being evaluated for Interim Stabilization.

If you have any questions, please contact me, on (509) 376-6888, or Ami Sidpara, Director, Tank Operations Division, on (509) 376-0933.

Sincerely,

George H. Sanders, Program Manager
Office of Regulatory Liaison

ORL:HMR

Attachment

cc: See page 2

Attachment

CONSENT DECREE REPORTING DATA

For

First Quarter of Fiscal Year 2000

Consisting of 4 pages
including the cover page

CONSENT DECREE REPORTING DATA

ITEM 1: ACCOMPLISHMENTS AND ISSUES

ACCOMPLISHMENTS FOR FIRST QUARTER OF FISCAL YEAR (FY) 2000

- Pumping continued on tanks 241-SX-106, 241-S-102, 241-S-103, 241-S-106 and 241-U-103.
- The pumping efficiency improved from 32 percent in FY 1999, to 42 percent for the first quarter of FY 2000.
- An additional 111,000 gallons of waste was transferred out of the Single-Shell Tanks (SSTs), including 78,000 gallons of organic waste from U-farm.
- Evaluation of tank 241-T-104 has determined that it met all the criteria to be declared "interim stabilized."
- Tanks 241-SX-104, 241-SX-106 and 241-T-110 are being evaluated for Interim Stabilization.
- Initiated pumping for one new tank, 241-U-105.
 - This included installation of a pumping control system, a flammable gas monitor, design, procurement, and modification of the U-farm dilution system to accommodate a second tank, installation of the pump assembly, jumpers, and leak detectors in a number of valve pits, hydro-testing transfer lines, and connecting the controls systems with all other interconnected tanks.
- Completed the procurement, fabrication, and testing of most of the equipment required to initiate pumping in U-102.
- Organized a Pumping Optimization Team to focus on the issues that were resulting in down time for the tanks that were pumping. The improved performance noted in the first paragraph is the result of this focus, as well as ongoing improvements in design and fabrication.
- A new instrument to monitor flammable gas levels in the pump pit is being incorporated into the design. It is mechanically much simpler and is expected to reduce the maintenance and down time related to the existing monitoring system.
- The Authorization Basis (AB) requirements for lightning shutdowns have been reduced from a 50 mile radius to a 30 mile radius, reducing the effective area by over 60 percent.
- Quality Assurance criteria, fabrication requirements, and testing procedures have been tightened. Engineering is being performed to allow upgrading of some parts that have been troublesome, and to improve design to simplify maintenance activities.

SIX MONTH LOOK AHEAD

- Initiate pumping in five additional tanks: U-102, and U-109, A-101, AX-101, and SX-105.
- Replace the failed pump in S-102 with a new pump, and continue pumping the tanks in S/SX-farm and U-farm.
- Complete the ongoing evaluation to determine that the Interim Stabilization criteria have been met for SX-104, SX-106, and T-110.
- Initiate the evaluation for determination of stabilization for two additional tanks S-103 and S-106.
- Initiate use of the new flammable gas monitoring (FGM) system starting with tank U-102.
- Complete testing and initiate use of a redesigned jet pump unit to be used in high volume tanks such as A-101 and AX-101.
- Two additional SY-101 transfers and two additional cross-site transfers are scheduled in next six months.

ISSUES AND RECOVERY

- Corrective maintenance exceeded our estimates by about 40 percent.

Critical components are being reviewed for improvements or replacement with more reliable parts. The assignment of maintenance support personnel to shift operations is being evaluated.

- The U-farm transfer lined plugged in early November and impacted the schedule. The chemical evaluation of U-farm waste indicates that some precipitation may occur during waste transfers, even if optimal dilution is maintained. Line plugging occurred in November 3, 1999 halting the ongoing U-103 pumping and delaying the November 15 start of the U-105 pumping. After completing the recovery actions, pumps were started on December 12, 1999.

Dilution ratios have been increased.

Minimum flow requirements are being instituted.

Jumper designs have been modified and heat tracing has been enhanced.

Tank starts are being accelerated to improve the volume performance.

- Saltwell screen inflow rates for some tanks (which are beyond anybody's control) have been less than predicted. This has limited the total volume pumped in this quarter, and may impact future volume pumped. Conditions are being documented to use in forecasts and to update the models that predict pumping rates. Estimated pumpable volumes may also need to be revised, as additional data becomes available.

SX-106 is the largest single contributor to the current volume shortfall due to the smaller inflow of tank liquid into the Saltwell. Based on the first quarter FY00 data: Average Inflow rate forecasted for planning is 1.86 gpm, whereas, the actual rate of inflow for SX-106 for this quarter was only 0.22 gpm. This resulted in the shortfall of 77,000 gallons.

- The pump in S-102 failed, resulting in a large impact on both volume and efficiency.

Since this was one of the older pumps that did not have many of the recent enhancements, and since there is a large volume of waste remaining in that tank it was determined to delay repairs until the failed system could be replaced in its entirety with a new pump/ jumper system.

- It has been difficult to measure porosity in some tanks, especially sludge tanks, or tank wastes that have a very small grain structure. This makes calculation of pumpable and drainable liquids problematic and complicates the completion of the post pumping evaluations.

The engineering staff is looking at several options to refine the process to determine porosity, as well determining a capillary height on a tank specific basis.

- Potential for failure of old underground direct buried lines is of concern, which may affect the schedule and budget of this program. The existing line testing in preparation for upcoming tank U-109 pumping failed the hydrotest in January 2000. This delayed the scheduled start of U-109 pumping.

Engineering evaluations for new transfer routing are underway.

- Ecology had approved the DOE request in December 1999 to allow for engineering evaluation of the integrity of the underground piping, in lieu of the required yearly hydro-test.

In light of the pipe leak earlier in January 2000, DOE has determined to continue performing the yearly hydro-test to ensure continued integrity of piping, instead of the requested engineering evaluation.

ITEM 2: SCHEDULE COMPLIANCE

CONSENT DECREE MILESTONES

There were no Consent Decree Milestones for this quarter, however, the relevant milestones for this fiscal year are:

- Initiate pumping of U-102, U-103, U-105, and U-109 by June 15, 2000. Pumping has been initiated in U-103, and U-105. Pumping of tanks U-102 and U-109 are scheduled to begin by April 2000.
- Initiate pumping in A-101 and AX-101 by September 30, 2000. Pumping is currently scheduled to begin in these tanks prior to June 30, 2000.
- Reduce the pumpable organic waste remaining to 38 percent of the original volume by September 30, 2000. The pumpable organic waste remaining has been reduced to 82 percent of the estimated original volume since September 1999, and the project is currently on track to meet this milestone.

CONSENT DECREE SCHEDULE STATUS

The Interim Stabilization Project has met all of the schedule requirements of the Consent Decree. The Project is currently on schedule to meet future milestones that is specified in the Consent Decree.

ITEM 3: SCHEDULE RECOVERY ACTIONS

Not Applicable. Interim Stabilization program is currently on schedule for meeting the Consent Decree.

ITEM 4: BUDGET/COST STATUS

The FY 2000 budget is \$35 million. The costs through the first quarter were \$7.6 million. This represents a negative cost variance of 25 percent. The majority of this variance can be attributed to work that had been carried over from FY 1999, and the U-farm plugged transfer line, none of which had been scheduled during this time. There is also a negative schedule variance of 4 percent to the project schedule. This is due to the delay due to clearing the plugged U-farm transfer line.

These negative variances are not expected to have any significant adverse consequences for this fiscal year or the life of the project

ITEM 5: DOE DIRECTIVES

No directives were given from ORP that directly impacted the operation of the Interim Stabilization Project.

Mr. Michael A. Wilson
00-ORL-025

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cc w/attach:

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