



U.S. Department of Energy

**Office of River Protection**

P.O. Box 450  
Richland, Washington 99352

0058179

OCT 28 2002

02-TOD-081

Mr. Michael A. Wilson, Program Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
1315 W. Fourth Avenue  
Kennewick, Washington 99336

**RECEIVED**  
OCT 05 2002  
**EDMC**

Dear Mr. Wilson:

TRANSMITTAL OF THE FOURTH QUARTERLY REPORT FOR THE FISCAL YEAR (FY) 2002 IN SUPPORT OF THE SINGLE-SHELL TANK (SST) INTERIM STABILIZATION (IS) CONSENT DECREE

This letter provides the fourth quarterly report and data (Attachment 1) for FY 2002, submitted in compliance with the quarterly reporting requirements for Milestone D-001-00-R14 established in the SST IS Consent Decree No. CT-99-5076-EFS, filed with the U.S. District Court on September 30, 1999.

Substantial progress was made during the last quarter of fiscal year 2002. Two milestones were met during the period. Milestone D-001-12V, the requirement to leave no more than 18 percent of pumpable liquid in SSTs by September 30, 2002, was completed. This was a significant accomplishment representing a large volume of liquid removed. Milestone D-001-13 was met early. It required startup of tanks 241-U-111, 241-S-109, 241-S-112, 241-S-101 and 241-S-107 by November 30, 2002, and the last tank completed startup criteria on September 21, 2002.

In addition to the above, 241-SX-105 was declared interim stabilized, and pumping was completed in two tanks, 241-BY-105 and 241-SX-103, which are now being evaluated. The 241-A-101 saltwell pump and the 244-BX Double Contained Receiver Tank (DCRT) transfer pump were replaced. Replacement of the DCRT transfer pump allowed pumping from the BY farm to resume after being held up for several months.

The total waste volume transferred during the quarter was about 421 Kgallons. The total waste volume transferred during fiscal year 2002 was about 1,231 Kgallons.

A refinement of the estimate of the volume of pumpable liquid in tanks not yet interim stabilized was made during the quarter. A high degree of rigor and independent reviews were used to validate the estimate, which is based on knowledge gained from past pumping performance.

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The estimate showed that a total of 2,515 Kgallons had to be removed to meet the milestone D-001-12V noted earlier. We removed 2,518.8 Kgallons by the end of September 30, 2002, thus completing the milestone. At the end of the quarter on September 30, 2002, we estimate that there are approximately 546 Kgallons of pumpable liquid that must be pumped in order to complete IS of the 29 tanks in the Consent Decree.

The Consent Decree requires that letters of direction to the contractor be included in the report. One letter of direction was sent to the Contractor during this quarter and is shown in (Attachment 2).

If you have any questions, please contact me, or your staff may contact Andrew Stevens, Tank Farms Programs Division, (509) 376-8235.

Sincerely,



James E. Rasmussen, Director  
Environmental Management Division

TOD:AJS

Attachments (2):

1. Consent Decree Reporting Data
2. 02-AMO-016 dated 7/23/02

cc: See page 3

Mr. Michael A. Wilson  
02-TOD-081

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cc w/attach:

D. I. Allen, CHG  
W. T. Dixon, CHG  
J. G. Field, CHG  
F. R. Miera, CHG  
T. R. Pauly, CHG  
M. A. Payne, CHG  
W. E. Ross, CHG  
D. J. Washenfelder, CHG  
R. Gay, CTUIR  
M. J. Zevenbergen, DOJ  
J. Lyon, Ecology  
D. G. Singleton, Ecology  
R. F. Stanley, Ecology  
D. Bartus, EPA c/o Ecogoy  
M. L. Goldstein, EPA  
J. S. Hertzell, FHI  
O. S. Kramer, FHI  
T. Martin, HAB  
P. Sobotta, NPT  
K. Niles, Oregon Energy  
E. M. Mattlin, RL  
R. Jim, YN  
TPA Administrative Record

**CONSENT DECREE REPORTING DATA  
FOURTH QUARTER OF FISCAL YEAR (FY) 2002**

This quarterly status report addresses the quarterly reporting requirements of Consent Decree Number CT-99-5076-EPS between the State of Washington, Department of Ecology (Ecology) and the U.S. Department of Energy (DOE). The consent decree requires that the DOE, Office of River Protection (ORP) submit a quarterly report that includes:

1. A brief description of the project accomplishments and project issues encountered during the reporting period and/or expected in the next six months;
2. A definitive statement describing whether or not DOE remains in compliance with the schedule set forth in Section IV-A;
3. Where applicable, a description of actions initiated or otherwise taken to recover any schedule slippage;
4. Budget/cost status;
5. Copies of written directives given by DOE to the contractor(s) for work required by this Decree.

In addition, reports for the fourth quarter of a FY (such as this report) are to include the total volume of liquid removed during the FY, the cumulative volume to date, and an updated projection of the pumpable liquid remaining in the tanks. The sections of this report address each of these requirements.

**ITEM 1: ACCOMPLISHMENTS AND ISSUES**

Fourth Quarter FY 2002 Accomplishments:

- Met Consent Decree Milestone D-001-12V requiring that the estimated volume of pumpable liquid remaining in the single-shell tanks (SSTs) be reduced to less than 18% by September 30, 2002. On this date, the pumpable liquid remaining had been reduced to 17.8%.
- Issued an Interim Stabilization Evaluation (IS) Form for 241-SX-105 verifying that the IS criteria were met for this tank.
- Installed the 241-C-103 exhauster to mitigate vapors and allow saltwell pumping equipment installation to continue.
- Initiated pumping of 241-S-101, 241-S-107, and 241-S-112 to complete Consent Decree Milestone D-001-13.
- Successfully completed an in-service leak test of the BY to BX hose-in-hose transfer line (HIHTL).
- Issued a report documenting an improved method for calculating IS progress (RPP-12324, Revision 0).
- Replaced the 241-A-101 saltwell pump and resumed pumping waste from that tank.
- Replaced the 244-BX double-contained receiver tank (DCRT) transfer pump.
- Resumed pumping of 241-BY-105 and 241-BY-106.

- Issued a revision to the estimated volume of pumpable liquid in the SSTs (HNF-2978, Revision 4).
- Stopped pumping of 241-BY-105 and 241-SX-103 and placed both tanks in evaluation mode to determine whether IS criteria have been met.
- Activated the SL-117 transfer line and resumed pumping from SX farm.
- Performed a waste transfer from 241-AP-102 to 241-AP-107.

#### Six-Month Look Ahead:

- Perform an evaluation of the failed SX farm to S farm HIHTL.
- Issue IS Evaluation Forms for 241-BY-105 and 241-SX-103.
- Complete installation of an HIHTL from the S-A Valve Pit to 241-SY-102.
- Replace the saltwell pump in 241-U-107.
- Replace the saltwell pump in 241-SX-101.
- Initiate saltcake retrieval demonstration activities in 241-U-107.
- Complete equipment installation and initiate pumping in 241-C-103.
- Perform a waste transfer from 241-SY-102 to 241-SY-101.
- Perform a cross-site transfer of waste from 241-SY-102 to 241-AP-102.
- Continue pumping to make steady progress towards reducing the pumpable liquid remaining to two percent. (Consent Decree Milestone D-001-00V).

#### Current Issues and Recovery Actions:

1. During the third quarter of FY 2002, the volume of waste transferred was less than had been anticipated as a result of waste drainage properties and equipment failures. This issue was addressed by increasing the number of tanks pumping, and increasing the pumping efficiency of those tanks. These actions were successful and the volume of waste transferred during the reporting quarter is significantly greater than that transferred in the third quarter of FY 2002.
2. During the second quarter of FY 2002, the HIHTL between SX and S farms failed during an attempt to clear an obstruction from the line. This failure resulted in the loss of this HIHTL as a route for the SX farm to S farm transfers. In addition, this failure called into question the continued use of HIHTLs at other tank farm locations.

To address the loss of the SX farm to S farm HIHTL as a transfer route, a direct buried line, SL-117, was successfully tested for use during the third quarter of FY 2002. Pumping in tanks 241-SX-101, 241-SX-102, and 241-SX-103 was resumed during the fourth quarter of FY 2002 using this transfer line.

To address the continued use of HIHTLs at other locations supporting IS, several steps were taken. Existing HIHTLs were evaluated and inspected with no indication of potential failure identified. However, concerns were raised regarding the use of the BY farm to BX farm HIHTL due to similarities in the design of this HIHTL to the HIHTL that failed. Both the BY farm to BX farm HIHTL and SX farm to S farm HIHTL are a coupled design, and it is believed that failure of the SX farm to S farm HIHTL occurred



at the center coupling. Specific actions taken to address these concerns are identified below.

- Developed formal criteria and limits for the usage of the BY to BX HIHTL based on an engineering analyses that considered both normal and contingent uses of the BY to BX HIHTL. Factors that limit service life, such as chemical compatibility, aging, pressure, and exposure to elevated process temperatures, were considered during the development of these criteria and limits.
  - Successfully completed a leak test of the BY to BX HIHTL prior to the start of actual waste transfers using the line.
3. At the beginning of the reporting quarter, the transfer line between U farm and SY farm was partially obstructed and pumping had previously been suspended until the obstruction could be cleared. A partially successful hot water back flush had been completed during the third quarter of FY 2002, which restored the line to about 75 percent capacity. Pumping from U farm has resumed, accompanied by frequent water flushes to monitor the condition of the line, and to assure the line remains open.

During the reporting period, the waste flow through this line was limited (e.g., only pumping two of the three tanks at a given time) and the line was frequently flushed. The line remained operational and the waste volumes produced from the U farm tanks have decreased to the point that the obstructed line can now accommodate all pumping from U farm without limiting flow through the line.

4. The 244-BX DCRT transfer pump was inoperable at the beginning of this quarter. The inoperable transfer pump was preventing the pumping of 241-BY-105 and 241-BY-106. The transfer pump was replaced and pumping from 241-BY-105 and 241-BY-106 was resumed on August 19, 2002.
5. Tanks 241-S-112 and 241-S-107 are both connected to transfer line SN-275 and were to be pumped simultaneously to SY farm. Back pressure from the pumping of 241-S-107 through transfer line SN-275 was too great to allow pumping of 241-S-112 to occur simultaneously. It was determined that the cause of the problem was a restriction in the SN-275 transfer line. This restriction limited the transfer of waste out of these two tanks.

The transfer line will continue to be used while one HIHTL is installed between the S-A Valve Pit and SY farm. Following installation of the HIHTL, the use of SN-275 will no longer be necessary.

Issues Expected to Arise in the Next Six Months:

No issues expected to arise in the next six-months are currently identified.

## **ITEM 2: SCHEDULE COMPLIANCE**

### FY 2002 Consent Decree Milestones

Consent Decree Milestones D-001-012V and D-001-13 were completed during the reporting quarter. Consent Decree Milestone D-001-012V required that the estimated volume of pumpable liquid remaining in the SSTs be reduced to less than 18% by September 30, 2002. Consent Decree Milestone D-001-13 required that pumping be initiated in tanks 241-U-111, 241-S-109, 241-S-112, 241-S-101, and 241-S-107 by November 30, 2002, and all were started at least 2 months early.

### Consent Decree Schedule Status

The next scheduled milestone, D-001-14, requires that pumping be initiated at 241-C-103 by April 30, 2003. ORP expects to complete this milestone ahead of the scheduled completion date.

ORP remains in compliance with the schedule set forth in Consent Decree, No. CT-99-5076-EPS between Ecology and USDOE.

## **ITEM 3: SCHEDULE RECOVERY ACTIONS**

No schedule recovery actions are required at this time.

## **ITEM 4: BUDGET/COST STATUS**

The FY 2002 budget for Interim Stabilization increased from \$35.3M to \$36.0M in the fourth quarter. Ending this period, there was a positive 3.1 percent (\$1,023K) cost variance and a negative 8.7 percent (-\$3,144K) schedule variance for FY 2002.

## **ITEM 5: DOE DIRECTIVES**

ORP issued one directive to the contractor during this quarter. The letter is listed below, and a copy is attached.

- Letter, R. J. Schepens, ORP, to E. S. Aromi, CH2M HILL, "Contract Number DE-AC27-99RL14047 – BY Farm Hose-in-Hose Transfer Line," 02-AMO-016/0202705, dated July 23, 2002.

## **ITEM 6: REQUIRED WASTE VOLUME NUMBERS**

The total volume of waste transferred during the fourth quarter of FY 2002 was approximately 420 Kgallons. The total volume of waste transferred during FY 2002 was approximately 1,231 Kgallons. This brings the total waste transfers for the project to approximately 2,519 Kgallons. Approximately 546 Kgallons of pumpable liquid remains in the SSTs subject to this Consent Decree as of September 30, 2002.

Based on data collected during IS activities, an updated projection of pumpable liquid remaining in tanks to be interim stabilized was developed. This updated projection corrects an over-estimate in the earlier calculation of liquid waste volume expected to be pumped to achieve IS. Because of the cost, personnel exposure, and dilution water requirements (i.e. resultant waste volume generation), it becomes impractical to pump all of the liquid from a tank, and most SSTs are stabilized after they have satisfied IS criteria with some liquid remaining in them. Taking into account the pumpable liquid remaining in tanks that have been interim stabilized, approximately 2,515 Kgallons of waste had to be removed to meet Consent Decree Milestone D-001-12V. This volume was achieved on September 28, 2002.





U.S. Department of Energy  
**Office of River Protection**

P.O. Box 450  
Richland, Washington 99352

02-AMO-016

JUN 23 2002

Mr. E. S. Aromi, President  
and General Manager  
CH2M HILL Hanford Group, Inc.  
Richland, Washington 99352

Dear Mr. Aromi:

CONTRACT NO. DE-AC27-99RL14047 – BY FARM HOSE-IN-HOSE-TRANSFER-LINE (HIHTL).

The U. S. Department of Energy (DOE) Office of River Protection (ORP) has conducted a review of the upcoming HIHTL movement of tank waste in the BY Farm, and has determined that the following requirements shall be met prior to conducting the transfer. These requirements have been discussed with your staff:

1. Formal criteria, limits, and bases for both are to be provided in a written Justification for Continued Usage, (JCU). The JCU should be supported by engineering analyses that bound Operations of both mid hose coupling and end hose coupling HIHTL designs and include consideration for both normal and all contingent uses (i.e., flush or other...). The JCU should consider any Ethylene Propylene Diene Monomer (EPDM) hose aging or service life limiting conditions such as chemicals and heat tracing temperatures as well as others. These JCU criteria and limits would be embedded in appropriate formal field procedures before any further operations resume using BY Farm HIHTL.
2. Completion of formal proof testing (such as a hydrostatic test with water) to verify integrity of BY Farm HIHTL for all conditions of use up to pressure and temperature bounds permitted by above JCU. A plan should be established to conduct periodic re-verification by proof testing if appropriate, at a frequency related to any aging criteria/analysis that has been performed, if the period of usage and operations for the currently installed HIHTL design becomes extended.
3. There are formal bases, supported by appropriate engineering analyses that addresses the technical issues that DOE and your own outside expert consultants, have provided to CH2M HILL Hanford Group, Inc. (on HIHTL failure modes). All such existing issues arising from DOE have been transmitted informally in memos and e-mails prior to this date.

Mr. E. S. Aromi  
02-AMO-016


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You are requested to provide written justification for my review and approval prior to conducting a waste transfer through the BY Tank Farm HIHTL. In addition, it is my expectations that you provide a commitment date for completing a failure analysis for the SX Farm HIHTL and factor this information into future designs to prevent reoccurrence.

If you have any questions, please contact me, or your staff may contact Dana Bryson, Operations and Maintenance Division, (509) 372-0947.

Sincerely,

  
Roy J. Schepens  
Manager

OMD:JHS