



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

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JAN 29 2002

02-TOD-003

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State of Washington  
Department of Ecology  
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**EDMC**

Dear Mr. Wilson:

TRANSMITTAL OF A TECHNICAL SAMPLING BASIS AND WASTE INFORMATION REQUIREMENTS DOCUMENT QUARTERLY REPORT FOR THE PERIOD OCTOBER 1, 2001, TO DECEMBER 31, 2001, IN PARTIAL FULFILLMENT OF HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER MILESTONE M-44-15F

The submission of the attached report fulfills the agreement made between the U.S. Department of Energy, Office of River Protection (ORP) and the State of Washington, Department of Ecology (Ecology) by submitting the quarterly reports due at the end of the month after each Fiscal Year (FY) quarter. This report discusses first quarter FY 2002 activities and describes characterization project activities planned for the next 90 days.

During this quarter, core samples from Tanks 241-AN-105 were completed. Grab samples were taken from Tanks 241-AN-102, 241-AP-102, 241-AZ-102, and 241-C-103. Issues that affected the quarter's planned core and grab samplings are discussed. One Tank Characterization Report was completed during the first quarter.

If you have any questions, please contact me, or your staff may contact Wen-Shou Liou, Technical Operations Division, (509) 373-9879.

Sincerely,

James E. Rasmussen, Director  
Environmental Management Division

TOD:WSL

Attachment

cc: See page 2

JAN 29 2002

Mr. Michael A. Wilson  
02-TOD-003

-2-

cc w/o attach:

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CHG-0200309

Attachment

CONTRACT NUMBER DE-AC27-99RL14047:  
TECHNICAL SAMPLING BASIS-WASTE INFORMATION  
REQUIREMENTS DOCUMENT (TSB-WIRD)  
QUARTERLY REPORT FOR THE PERIOD  
OCTOBER 1, 2001 TO DECEMBER 31, 2001

Consisting of 14 pages  
including cover page

## TSB-WIRD Quarterly Report, October 1, 2001, through December 31, 2001

### EXECUTIVE SUMMARY

Highlights for this first quarter reporting period are:

- Obtained core samples from tank AN-105.
- Obtained grab samples from tanks AN-102, AP-102, AZ-102, and C-103.
- Issued one Auto (Electronic) Tank Characterization Report for tank U-111.
- Input characterization data for eight tanks into the Tank Waste Information Network System (TWINS) electronic database within seven days of release of each laboratory analysis report in support of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) Milestone M-44-16F. The eight tanks are AN-106, AP-106, AW-104, AW-105, AZ-102, C-103, C-107, and SY-102.
- Issued the annual Technical Sampling Basis - Waste Information Requirements Document (TSB-WIRD) deliverables completion report for FY 2001.

Several issues during the first quarter Fiscal Year (FY) 2002 affected the quarter's planned core and grab samplings with deferral of those samples to the second quarter. (See Section 1.2.)

Reporting on a tank-by-tank basis of sampling and other deliverables provided during the first quarter of FY 2002 is provided in this report.

A look-ahead at the Characterization Program activities planned for the next 90-day period is provided.

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## 1.0 CHARACTERIZATION ACCOMPLISHMENTS AND ISSUES

### 1.1 Accomplishments

Tables 1 and 2 summarize the sampling events and reports completed by the Characterization Project during Fiscal Year (FY) 2002. Events and reports completed during the first quarter of FY 2002 (October 1, 2001, through December 31, 2001) are shown in bold in the tables. Table 1 is patterned after Table 7-1 in the FY 2002 Technical Sampling Basis - Waste Information Requirements Document (TSB-WIRD), RPP-8093, Rev. 0. Table 1 compares progress against planning levels in the FY 2002 TSB-WIRD for the entire fiscal year. Table 2 lists the tank characterization reports (TCRs) issued during FY 2002 and the associated issues addressed by each. Notable accomplishments of the Characterization Project during the first quarter of FY 2002 include:

- Obtained core samples from tank AN-105.
- Obtained grab samples from tanks AN-102, AP-102, AZ-102, and C-103.
- Issued one Auto (Electronic) Tank Characterization Report for tank U-111.
- Input characterization data for eight tanks into the Tank Waste Information Network System (TWINS) electronic database within seven days of release of each laboratory analysis report in support of Tri-Party Agreement Milestone M-44-16F. The eight tanks are AN-106, AP-106, AW-104, AW-105, AZ-102, C-103, C-107, and SY-102.
- Issued the annual Technical Sampling Basis - Waste Information Requirements Document (TSB-WIRD) deliverables completion report for FY 2001.

### 1.2 Issues

Two issues during the first quarter FY 2002 affected the quarter's planned samplings with deferral of those samples to the second quarter:

- The grab sampling of tank U-107 was delayed because of low flow rates in the waste transfer lines servicing the U tank farm. Sampling of tank U-107 will support the saltcake dissolution test to be performed in this tank. Efforts to improve the flow rates through the transfer lines began during the first quarter of FY 2002 and are continuing during the second quarter. Grab sampling of tank U-107 will be performed when the flow rates are sufficient to support the saltcake dissolution studies.
- The anticipated first-quarter grab sampling of tank SY-102 was deferred in order to complete repairs to the ventilation exhauster on tank SY-102. The State of Washington Department of Health ordered activities associated with tank SY-102 to cease if the

exhauster was not repaired by December 21, 2001. As a result of the failure to meet this deadline, saltwell pumping from West Area single-shell tanks (SSTs) was suspended. Without the addition of the saltwell liquid to tank SY-102, the cross-site transfer to tank AP-102 was postponed, delaying the subsequent grab sampling of tank SY-102 for the Compatibility issue. The exhauster has been repaired, and saltwell pumping to SY-102 is anticipated to resume during the second quarter. Saltwell pumping to tank SY-102 is currently behind schedule and may further delay the cross-site transfer from SY-102 to AP-102. Upon completion of the cross-site transfer of the saltwell liquid from SY-102 to AP-102, tank SY-102 will be grab sampled.

## **2.0 CHARACTERIZATION PROGRAM PERFORMANCE**

### **2.1 Core Sampling**

The "Look Ahead" section in the FY 2001 TSB-WIRD Fourth Quarter Report anticipated acquiring one push-mode core each from tank AN-105 for Corrosion Control and tank AP-105 for Corrosion Control and polychlorinated biphenyls (PCBs) during the first quarter of FY 2002. The core sampling of tank AN-105 was completed. The core sampling of tank AP-105 was deferred to the second quarter.

### **2.2 Grab Sampling**

The "Look Ahead" section in the FY 2001 TSB-WIRD Fourth Quarter Report anticipated that the following grab sampling events would be completed during the first quarter of FY 2002: tanks AN-102 and AZ-102 for Corrosion Control, tank AP-102 for Corrosion Control and PCBs, tank C-103 for the presence of organics and PCBs, tank SY-102 for cross-site transfer operations and PCBs, and tank U-107 for the saltcake dissolution demonstration and PCBs.

Grab sampling of tanks AN-102, AP-102, and AZ-102, and C-103 was completed. Because a planned transfer of waste from tank SY-102 to tank AP-102 was delayed, the sampling of tank SY-102 was deferred to the second quarter. Grab sampling of tank U-107 was deferred until saltwell pumping of that tank is initiated. See Section 1.2 for additional information.

### **2.3 Vapor Sampling**

No vapor sampling is planned or scheduled for FY 2002.

### **2.4 Auger Sampling**

No auger sampling is planned or scheduled for FY 2002.

## **2.5 Schedule Performance**

At the end of the first quarter of FY 2002, the Characterization Program was behind schedule in comparison to the Sampling Schedule, Revision 5.8:

- During the first quarter of FY 2002, truck #1 was operational and used to push-mode core sample tank AN-105. Trucks #3 and #4 were in preventive maintenance outages; truck #2 is retired. At the end of the first quarter of FY 2002, a total of three core samples had been collected from three different tanks against FY 2002 schedules: one core each was collected from tanks AW-104 and AW-105 during the fourth quarter of FY 2001 and one core from tank AN-105 during the first quarter of FY 2002. This is behind the four core samples originally scheduled for the first quarter.
- During the first quarter of FY 2002, grab samplings of tanks AN-102, AP-102, and AZ-102, and C-103 were completed. At the end of the first quarter of FY 2002, a total of four tanks had been sampled of the five tanks scheduled, which is behind schedule for the first quarter of FY 2002 (see Section 1.2).
- See Table 1 for listing of specific tanks sampled and the programs/issues the samplings supported.

## **2.6 Tank Characterization Reports (TCR)**

During the first quarter of FY 2002, one TCR for tank U-111 was issued. The TCRs issued in FY 2002 are identified in Table 2, and are accessible to authorized users at the following Internet location:

- <http://twins.pnl.gov:8001/>

## **3.0 STATUS TABLES**

Table 1, Summary of Sampling by Issue, is patterned after Table 7-1 in the FY 2002 TSB-WIRD (RPP-8093, Rev. 0). Table 1 columns of particular interest for FY 2002 are:

Tanks Needed for FY 2002 TSB-WIRD Commitments: The number of tanks originally identified in the FY 2002 TSB-WIRD as the minimum needing to be sampled during FY 2002 (condensed or vapor phase) in support of each of the River Protection Project (RPP) program issues. These numbers are sometimes referred to as the FY 2002 deliverables/commitments to the Washington State Department of Ecology. They are considered the baseline numbers for FY 2002.

Tanks Scheduled FY 2002: The number of tanks supporting each issue scheduled to be sampled in FY 2002. They are based on the most current Characterization Program Sampling Schedule Revision 5.8.

Tanks Sampled Against FY 2002 TSB-WIRD Commitments: Number of tanks that have been sampled through December 31, 2001, in support of issues and commitments in the FY 2002 TSB-WIRD. Tanks that were sampled during FY 2001 against FY 2002 TSB-WIRD commitments are included in this total.

Table 2 lists the TCRs published during FY 2002 and the associated programs/issues addressed by each.

Table 1. Summary of Sampling by Issue

Sampling Needed		Tanks Needed for FY 2002 TSB-WIRD Deliverables	Tanks Scheduled FY 2002 (Rev. 5.8)	Tanks Previously Sampled	Tanks Sampled This Quarter	Tanks Sampled Against FY 2002 TSB-WIRD Deliverables <sup>1</sup>	Tanks Sampled in FY 2002
Operations	cond	1	1	0	0	0	---
Evaporator Operations	cond	2	2	0	0	0	---
Interim Stabilization	cond	0	0	0	0	0	---
Corrosion Control	cond	6	11	2 (AW-104 core <sup>2</sup> ) (AW-105 core <sup>2</sup> )	4	6	AW-104 core <sup>2</sup> , AW-105 core <sup>2</sup> , AZ-102 grab, AN-102 grab, AP-102 grab, AN-105 core
ICD-23	cond	0	0	0	0	0	---
Waste Feed Delivery Phase 1	cond	0	0	0	0	0	---
SST Retrieval and Tank Closure	cond	1	1	0	0	0	---
Key Processing Parameters		0	0	0	0	0	---
Waste Processing and Disposal	cond	0	0	0	0	0	---
Dangerous Wastes	cond	0	0	0	0	0	---
PCB	cond	OP	OP	1 (AW-104 core <sup>2</sup> )	2	OP (3)	AW-104 core <sup>2</sup> , C-103 grab, AP-102 grab
Air Emissions	vap	0	0	0	0	0	---
Miscellaneous Facilities	cond	1	1	0	0	0	---
Waste Certification (ICD-19, ICD-20)	cond	0	0	0	0	0	---
Miscellaneous Operations	cond / vap	OC	OC	0	1	OC (1)	C-103 grab
Safety Screen	cond	OP	OP	0	0	OP	---



**Table 2. TCRs Issued During FY 2002**

<b>TCRs</b>	<b>Issues Addressed</b>
<b>U-111*</b>	<b>Compatibility</b>

NOTES:

\* The sampling for these TCRs was conducted prior to FY 2002.

The TCRs shown in **BOLD** were issued during the First Quarter, October 1, 2001, through December 31, 2001.

**4.0 LOOK AHEAD**

Characterization Program activities planned for the second quarter of FY 2002 (January 1 through March 31, 2002) include:

- Obtaining one push-mode core each from tanks AP-105, AY-101, and AY-102 for Corrosion Control; the core from tank AP-105 will also be analyzed for PCBs.
- Obtaining grab samples from tanks AN-107 (Corrosion Control), SY-102 (Compatibility for cross-site transfer, PCB), and U-107 (saltcake dissolution demonstration for SST Retrieval and Closure, PCB).
- Issuing three TCRs, one each for tanks AP-104, S-109, and SY-102 using new sample data.

**5.0 PROGRAMS AND ISSUE STATUS**

This section addresses sampling conducted during the first quarter of FY 2002 for each of the issues and programs that were identified in the FY 2002 TSB-WIRD as requiring characterization sampling. Specific identification and a detailed discussion of the individual drivers for these issues and programs may be found in the FY 2002 TSB-WIRD (RPP-8093, Rev. 0).

**5.1 Operations**

Operations covers Compatibility sampling for tank-to-tank transfers, cross-site transfers, and other miscellaneous requirements. No tanks were sampled for this issue during the first quarter of FY 2002 (see Section 1.2). The FY 2002 TSB-WIRD identifies sampling of tank SY-102 as

the deliverable/commitment for the Operations issue; tank SY-102 is scheduled to be grab sampled three times during FY 2002 for this issue.

## **5.2 Evaporator Operations**

Evaporator Operations includes sampling waste staged as feed for the 242-A Evaporator. No tanks were sampled for this issue during the first quarter of FY 2002. The FY 2002 TSB-WIRD identifies sampling of tanks AP-107 and AW-106 as deliverables/commitments for the Evaporator Operations issue.

## **5.3 Interim Stabilization (Compatibility)**

Interim Stabilization (Compatibility) covers sampling of SSTs to assess the compatibility of the SST liquid with the double-shell tank (DST) system prior to pumping of the SST liquid to the DST system. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the Interim Stabilization issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

## **5.4 Corrosion Control**

Corrosion Control covers sampling of DSTs to verify that DST tank waste composition is in compliance with Technical Safety Requirements Administrative Control 5.15 limits. During the first quarter of FY 2002, tanks AN-102, AP-102, and AZ-102 were grab sampled and tank AN-105 was push-mode core sampled in support of this issue. The FY 2002 TSB-WIRD identifies six sampling deliverables/commitments for the SST Retrieval and Tank Closure issue: tanks AN-102, AN-107, AW-104, AW-105, AY-101, and AY-102. Tanks AW-104 and AW-105 were push-mode core sampled during the fourth quarter of FY 2001 in support of FY 2002 TSB-WIRD deliverables/commitments for this issue.

## **5.5 Interface Control Document 23 (ICD-23)**

Sampling for the ICD-23 issue supports design and testing for the Waste Treatment Plant. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the ICD-23 issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

## **5.6 Waste Feed Delivery Phase 1**

Waste Feed Delivery Phase 1 sampling supports preparations for supplying waste from Phase 1 tanks to the Waste Treatment Plant. The FY 2002 TSB-WIRD does not identify any tanks to be

sampled for the Waste Feed Delivery issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

### **5.7 Single-Shell Tank Retrieval and Tank Closure**

Sampling for this issue supports retrieval of SST waste into the DST system and preparation for SST closure activities. During the first quarter of FY 2002, no tanks were sampled in support of this issue (see Section 1.2). The FY 2002 TSB-WIRD identifies one sampling deliverable/commitment, tank U-107, for the SST Retrieval and Tank Closure issue; tank U-107 is scheduled to be grab sampled five times during FY 2002 in support of this issue.

### **5.8 Key Processing Parameters**

Sampling for this issue supports measurement of certain waste properties and analytes that affect tank waste processing and disposal. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the Key Processing Parameters issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

### **5.9 Waste Processing and Disposal**

Waste Processing and Disposal sampling supports preparations for supplying waste from Phase 1 tanks to the Waste Treatment Plant. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the Waste Processing and Disposal issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

### **5.10 Dangerous Wastes (Regulatory Compliance)**

Sampling for the Dangerous Waste issue supports regulatory characterization of tank waste. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the Dangerous Waste issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

### **5.11 Polychlorinated Biphenyls (PCB)**

Sampling for the PCB issue supports determination of PCBs in SSTs and DSTs to ensure that the PCB waste acceptance limits for DSTs and the Waste Treatment Plant will be met. The FY 2002 TSB-WIRD does not identify specific sampling requirements for this issue. The PCB characterization plan for FY 2002 (RPP-6693, Rev. 2) indicates that sampling during FY 2002 in support of this issue is opportunistic. During the first quarter of FY 2002, tanks AP-102 and C-103 were grab sampled in support of this issue. Tank AW-104 was push-mode core sampled during the fourth quarter of FY 2001 in support of this issue.

### **5.12 Air Emissions (Regulatory Compliance)**

Vapor sampling for this issue supports regulatory air permitting. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the Air Emissions issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

### **5.13 Miscellaneous Facilities**

Sampling for this issue supports interim stabilization of facilities that are not categorized as SSTs, DSTs, or inactive miscellaneous underground storage tanks. During the first quarter of FY 2002, no facilities were sampled in support of this issue. The FY 2002 TSB-WIRD identifies one sampling deliverable/commitment, the 244-AR vault, for the Miscellaneous Facilities issue.

### **5.14 Waste Certification (ICD-19 and ICD-20)**

Sampling for this issue supports characterization of tank waste to determine if staged tank waste meets envelope specifications prior to transfer to the Waste Treatment Plant. The FY 2002 TSB-WIRD does not identify any tanks to be sampled for the Waste Certification issue during FY 2002, and no tanks were sampled for this issue during the first quarter of FY 2002.

### **5.15 Miscellaneous Operations**

Sampling for miscellaneous operations supports sampling events associated with operational requirements not otherwise identified in the FY 2002 TSB-WIRD. These samples are acquired as operational requirements dictate. During the first quarter of FY 2002, tank C-103 was grab sampled to confirm the presence of a floating organic layer in the tank.

### **5.16 Safety Screening**

The FY 2002 TSB-WIRD identifies sampling for Safety Screening as opportunistic. Safety Screening analysis is applied to a tank sample only when a tank not previously sampled for Safety Screening is sampled for some other issue. No tanks were sampled for this issue during the first quarter of FY 2002.