ENGINEERING CHANGE NOTICE

1. ECN 665738

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	B. M. Hanlon, Inventory & Flowsheet Eng. R3-72, 373-2053	☐ Yes ☒ No	02/26/01
	6. Project Title/No./Work Order No. Waste Tank Summary Report for Month Ending January 31, 2001	7. Bldg./Sys./Fac. No. N/A	8. Approval Designator N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-EP-0182, Rev. 153	10. Related ECN No(s). N/A	11. Related PO No. N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Completed	12d. Restored to Original Condition (Temp. or Standby ECNs only)
☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? ☐ Yes ☒ No

Complete revision

Computer generated:

File: \\AP001\TWRSSHAR\SHARE\BETTYH 1\HNF-EP 1

Size: 5.39MB (5,660,160 bytes)

Modified: Monday,February 26, 2001 11:38:52 AM

14a. Justification (mark one)	14b. Justification Details
Criteria Change ☐ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	This ECN is being generated to update waste tank farm summary information.

15. Distribution (include name, MSIN, and no. of copies)

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ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 665738

16. Design Verification Required	17. Cost Impact				18. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
☐ Yes	Additional ☐	$	Additional ☐	$	Improvement ☐	
☒ No	Savings ☐	$	Savings ☐	$	Delay ☐	

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	Tickler File	☐
Environmental Report	☐	Inspection Plan	☐		☐
Environmental Permit	☐	Inventory Adjustment Request	☐		☐

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
N/A		

21. *Approvals*

	Signature	Date		Signature	Date
Design Authority			Design Agent		
Cog. Eng.	B.M. Hanlon	2/26/01	PE		
Cog. Mgr.	J.S. Garfield	2/26/01	QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
Other			Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

HNF-EP-0182, Rev. 154

Waste Tank Summary Report for Month Ending January 31, 2001

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
Hanford Group, Inc.
Richland, Washington

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC06-99RL14047

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WASTE TANK SUMMARY REPORT FOR MONTH ENDING JANUARY 31, 2001

BM Hanlon
CH2M HILL Hanford Group, Inc.

Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-99RL14047

EDT/ECN: ECN-665738 UC:
Cost Center: Charge Code:
B&R Code: Total Pages: 97

Key Words: REPORT, WASTE TANK SUMMARY

Abstract: See Page v of document.

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STA: 4
MAR 01 2001
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RECORD OF REVISION

(1) Document Number: HNF-EP-0182

Page 1

(2) Title: WASTE TANK SUMMARY REPORT FOR MONTH ENDING JANUARY 31, 2001

Change Control Record

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
153	(7) EDT-631372	BM Hanlon	JS Garfield
154 RS	Incorporation of ECN-665738	BM Hanlon	JS Garfield

A-7320-005 (10/97)

HNF-EP-0182, Rev.154

Waste Tank Summary Report for Month Ending January 31, 2001

B. M. Hanlon
CH2M HILL Hanford Group, Inc.

Date Published
February 2001

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
Hanford Group, Inc.

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Richland, Washington

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC06-99RL14047

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HNF-EP-0182, rev 154.

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APPROVALS

Prepared by: B. M. Hanlon — Date 2/26/01

Responsible Manager: John S. Garfield, Manager, Inventory and Flowsheet Engineering — Date 2-26-01

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Waste Tank Summary Report

B. M. Hanlon

ABSTRACT

(i) *This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 435.1 (DOE-RL, July 1999, Radioactive Waste Management, U. S. Department of Energy-Richland Operations Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm tanks.*

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METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons

$$°F = \left(\frac{9}{5}°C\right) + 32$$

1 Btu/h = 2.930711 E-01 watts
(International Table)

Waste Tank Summary Report
For Month Ending January 31, 2001

Note: Changes from the previous month are in bold print.

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks[b]	28 double-shell	10/86
Single-Shell Tanks	149 single-shell	1966
Assumed Leaker Tanks	67 single-shell	07/93
Sound Tanks	28 double-shell 82 single-shell	1986 07/93
Interim Stabilized Tanks[a]	125 single-shell	09/00
Not Interim Stabilized[c]	24 single-shell	09/00
Intrusion Prevention Completed	108 single-shell	09/96
Controlled, Clean, and Stable[f]	36 single-shell	09/96
Watch List Tanks[d] Total	19 single-shell 6 double-shell 25 tanks	09/00[e] 06/93

[a] Of the 125 tanks classified as Interim Stabilized, 65 are listed as Assumed Leakers. (See Table G-1)

[b] Six double-shell tanks are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510.

[c] Two of these tanks are Assumed Leakers (BY-105, BY-106). (See Table F-1)

[d] See Appendix D for more information on Watch List Tanks.

[e] Dates for the Watch List tanks are "officially added to or removed from the Watch List" dates. Eighteen tanks were removed from the Organic Watch List in December 1998; the last two tanks (C-102 and C-103) were removed from the Organic Watch List in August 2000. In December 1999, tank C-106 was removed from the High Heat Load Watch List. Only the Hydrogen Watch List remains.

[f] The TY tank farm was officially declared Controlled, Clean, and Stable (CCS) in March 1996. The TX tank farm and BX tank farms were declared CCS in September 1996.

II. WASTE TANK INVESTIGATIONS

This section includes all single- or double-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell radiation level increases in excess of established criteria.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix H for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued, or for which a waste tank investigation is in progress, for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker, or c) the investigation is completed.

There are no formal leak investigations in progress. There are no tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

Candidate Intrusion List: Increase criteria in the following tanks indicate possible intrusions.

Tank 241-B-202
Tank 241-BX-101
Tank 241-BX-103
Tank 241-BY-103

The surveillance data was last reviewed on the tanks listed as having probable liquid intrusions: Memo 74B20-99-045, dated November 22, 1999.

Catch Tank 241-AX-152: The liquid level in this catch tank was steady around 66.75 inches from the startup of Project W-030, "Tank Farm Ventilation System," in March 1998 until late August 1998. The level then began to decrease. The October 1998 reading of 65 inches is 1.75 inches below the summer average. This is an active catch tank, routinely pumped, and deviations from baseline are not applicable per OSD-00031. The decrease represents a significant change in trend and it is apparent that tank conditions changed around the end of August 1998.

Resolution Status: Discrepancy Report #98-853 was issued on November 4, 1998. One possible cause under investigation is a change in flow path, causing an increase in evaporation. The tank was pumped down to 2.25 inches on November 13, 1998. Since that time the level has decreased to 0.00 inches. The Discrepancy Report will remain open until an engineering investigation is complete.

The discrepancy remained unresolved, and there was a renewed interest in this tank because of its importance for deactivation of the 702A ventilation system to prepare it for Decommissioning and Deactivation and for collection of drainage from AX-155. In the absence of an agreement on a leak test, management requested a leak assessment. The leak assessment team met April 20, 2000, to review the data. Observations inconsistent

with a conclusion that the catch tank was leaking and scanty data prompted the leak assessment team to defer a decision pending availability of additional data - primarily tank temperature and a more sensitive level measuring device to shorten the necessary leak test time. A Leak Test Recommendation was issued May 8, 2000. The leak test involves adding water to the tank and measuring the level drop, to support tank integrity assessment. The addition of AX-152 integrity pressure test water to AY-101 is being re-evaluated because the actual volume of water to be added to the DST system is considerably more than the volume originally evaluated. The increased volume is necessary because of the siphon type pump in the catch tank.

Leak assessment is currently being performed per Work Package 2E-00-193. Water was added in August 2000 which raised the level to 10.75 inches. **The level was 8.75 inches on January 1, 2001.**

Work Package 2E-00-194 is on the schedule to fill the catch tank to 80% capacity (approximately 108 inches) and perform a 40-hour leak test.

Because the ENRAF will not be installed, Work Package ES-99-00133 has been revised to allow flammable gas sampling through the existing manual tape.

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Single-Shell Tanks Saltwell Jet Pumping (See Table A-6 footnotes for further information)

Tank 241-A-101 - Pumping began May 6, 2000. No pumping since August 2000; a total of 14.1 Kgallons has been pumped from this tank since start of pumping in May 2000.

Tank 241-AX-101 - Pumping began July 29, 2000. No pumping since August 2000; a total of 8.3 Kgallons has been pumped from this tank since start of pumping in July 2000.

Tank 241-S-102 - Pumping problems forced many shutdowns. The pump was replaced and pumping resumed on February 19, 2000. Problems with the new pump forced a shutdown on March 23, 2000. Pumping was interrupted in early June 2000; due to the flushing involved in trying to return to pumping, June pumping resulted in a net addition to the tank. No pumping since June 2000; a total of 56.8 Kgallons has been pumped from this tank since start of pumping in March 1999.

Tank 241-S-106 - Pumping was discontinued on January 3, 2000, to allow the waste levels to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria. **As of January 31, 2001, waste levels had not yet stabilized.**

Tank 241-S-109 - Pumping began September 23, 2000. **In January 2001, a total of 600 gallons was pumped; a total of 145.2 Kgallons has been pumped from this tank (111.0 Kgallons were pumped in 1979 [primary stabilization], and partial isolation in 1982).**

Tank 241-SX-101 - Pumping began November 22, 2000. In December 2000, a total of 6.9 Kgallons was pumped; a total of 19.2 Kgallons has been pumped from this tank. The pump failed on December 9, 2000. **No pumping in January 2001.**

Tank 241-SX-103 - Pumping began October 26, 2000. **In January 2001, a total of 10.5 Kgallons was pumped; a total of 104.0 Kgallons has been pumped from this tank since start of pumping in October 2000.**

Tank 241-SX-105 - Pumping began August 8, 2000. **In January 2001, a total 7.3 Kgallons was pumped; a total of 149.3 Kgallons has been pumped since start of pumping in August 2000.**

Tank 241-U-102 - Pumping began January 20, 2000. **In January 2001, a total of 2.6 Kgallons was pumped; a total of 74.0 Kgallons has been pumped from this tank since start of pumping in January 2000.**

Tank 241-U-105 - Pumping began December 10, 1999, and was discontinued July 13, 2000, because of a pump failure. Waste levels are being allowed to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria. **As of January 31, 2001 waste levels had not yet stabilized.**

Tank 241-U-106 - Pumping began August 24, 2000. In December 2000, a total of 0.7 Kgallons was pumped; a total of 39.1 Kgallons has been pumped from this tank since start of pumping in August 2000. Pumping rate has fallen below 0.05 GPM. The pump failed on December 29,000. The tank is currently in observation mode to determine eligibility for interim stabilization.

Tank 241-U-109 - Pumping began March 11, 2000. In December 2000, a total of 0.6 Kgallons was pumped; a total of 65.9 Kgallons has been pumped from this tank since start of pumping in March 2000. Jet pump failure occurred on December 4, 2000. Attempts to restart the pump have been unsuccessful. The tank is currently under observation mode to determine eligibility for interim stabilization with major equipment failure.

2. Double-Shell Tank 241-SY-101 Waste Level Increase

The flammable gas safety issues were resolved, and Tank 241-SY-101 was officially removed from the Hydrogen Watch List on January 11, 2001. This action completes the resolution of the top safety problem in the DOE complex for over a decade. It is expected that SY-101 will be back in service this year, initially used to receive waste from ongoing operations to remove the retrievable liquid from single-shell tanks.

3. **RP-CHG-TANKFARM-2001-0004, Occurrence Report, "Corrosion Observed in DST Tank 241-AY-101 During Video Inspection of the Annulus Section," Off-Normal Occurrence, Notification Date: January 31, 2001.**

Corrosion of the primary and secondary liners of DST AY-101 was observed during video inspections of the tank annulus region in 1999 and 2000. Follow-up video inspections that were completed on January 29, 2001 show more extensive corrosion in localized regions of the primary and secondary liners when viewed from the annulus region. There are no visual or radiological indications of waste leakage from the tank.

An operational restriction has been imposed to limit the waste level in this tank to less than 80 inches until further evaluation can be performed.

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APPENDIX A

MONTHLY SUMMARY

TABLE A-1. MONTHLY SUMMARY
TANK STATUS
January 31, 2001

	200 EAST AREA	200 WEST AREA	TOTAL
IN SERVICE	25	03	28 (1)
OUT OF SERVICE	66	83	149
SOUND	59	51	110
ASSUMED LEAKER	32	35	67
INTERIM STABILIZED	60	65	125
ISOLATED			
PARTIAL INTERIM	11	30	41
INTRUSION PREVENTION COMPLETE	55	53	108
CONTROLLED, CLEAN, AND STABLE	12	24	36

WASTE VOLUMES (Kgallons)

		200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AW	Aging waste	1757	0	1757	0	1757	1757
CC	Complexant concentrate waste	3167	1264	4431	0	4431	4431
CP	Concentrated phosphate waste	1089	0	1089	0	1089	1089
DC	Dilute complexed waste	808	811	1619	1	1618	1619
DN	Dilute non-complexed waste	1574	0	1574	0	1574	1574
PD	PUREX/TRUsolids	317	0	317	0	317	317
NCPLX	Non-complexed waste	164	149	313	313	0	313
DSSF	Double-shell slurry feed	6032	168	6200	1049	5151	6200
TOTAL SUPERNATANT		14908	2392	17300	1363	15937	17300
SOLIDS							
Sludge (includes liquids)		6502	5648	12150	11059	1091	12150
Saltcake (includes liquids)		8106	15791	23897	20689	3208	23897
TOTAL SOLIDS		14608	21439	36047	31748	4299	36047
TOTAL WASTE		29516	23831	53347	33111	20236	53347
AVAILABLE SPACE IN TANKS		10236	825	11061	0	11061	11061
DRAINABLE INTERSTITIAL LIQUID (2)		1425	2018	3443	3443	(2)	3443
DRAINABLE LIQUID REMAINING (2)		2472	2334	4806	4806	(2)	4806

(1) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, AN-103, AN-104, AN-105, AW-101, SY-101, and SY-103. SY-101 was removed from the Hydrogen Watch List in January 2001and will return to service later in the year.

(2) Drainable Interstitial Liquid and Drainable Liquid Remaining for single-shell tanks only; not applicable for double-shell tanks

TABLE A-2. TANK USE SUMMARY

January 31, 2001

TANK FARMS	TANKS AVAILABLE TO RECEIVE WASTE TRANSERS	SOUND	ASSUMED LEAKER	ISOLATED TANKS: PARTIAL INTERIM ISOLATED	ISOLATED TANKS: INTRUSION PREVENTION COMPLETED	ISOLATED TANKS: CONTROLLED CLEAN, AND STABLE	INTERIM STABILIZED TANKS
EAST							
A	0	3	3	2	4	0	5
AN	7 (1)	7	0	0	0	0	0
AP	8	8	0	0	0	0	0
AW	6 (1)	6	0	0	0	0	0
AX	0	2	2	1	3	0	3
AY	2	2	0	0	0	0	0
AZ	2	2	0	0	0	0	0
B	0	6	10	0	16	0	16
BX	0	7	5	0	12	12	12
BY	0	7	5	5	7	0	10
C	0	9	7	3	13	0	14
Total	25	59	32	11	55	12	60
WEST							
S	0	11	1	10	2	0	5
SX	0	5	10	6	9	0	11
SY	3 (1)	3	0	0	0	0	0
T	0	9	7	5	11	0	16
TX	0	10	8	0	18	18	18
TY	0	1	5	0	6	6	6
U	0	12	4	9	7	0	9
Total	3	51	35	30	53	24	65
TOTAL	28	110	67	41	108	36	125

(1) Six Double-Shell Tanks on the Hydrogen Watch List are not currently receiving waste transfers (AN-103, 104, 105, AW-101, SY-101 and 103). SY-101 was removed from the Hydrogen Watch List in January 2001 and will return to service later in the year.

TABLE A-3. PUMPING RECORD, LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANK FARMS

January 31, 2001

	Waste Volumes (Kgallons)						
TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL REMAINING	DRAINABLE LIQUID REMAINING	PUMPABLE SST LIQUID REMAINING
EAST							
A	0.0	0.0	164.6	503	161	665	622
AN	N/A	N/A	N/A	3741	N/A	N/A	N/A
AP	N/A	N/A	N/A	5393	N/A	N/A	N/A
AW	N/A	N/A	N/A	2489	N/A	N/A	N/A
AX	0.0	0.0	21.3	378	105	483	447
AY	N/A	N/A	N/A	482	N/A	N/A	N/A
AZ	N/A	N/A	N/A	1757	N/A	N/A	N/A
B	0.0	0.0	0.0	15	262	277	203
BX	N/A	0.0	200.2	24	127	N/A	N/A
BY	0.0	0.0	1567.8	0	581	581	498
C	0.0	0.0	103.0	126	189	315	207
Total	0.0	0.0	2056.9	14908	1425	2321	1977
WEST							
S	0.6	21.7	1075.1	76	620	696	578
SX	17.8	193.7	651.3	134	334	468	395
SY	N/A	N/A	N/A	2075	N/A	N/A	N/A
T	0.0	0.0	245.7	29	218	246	168
TX	N/A	0.0	1205.7	9	297	N/A	N/A
TY	N/A	0.0	29.9	0	53	N/A	N/A
U	2.6	31.3	365.4	69	496	565	483
Total	21.0	246.7	3573.1	2392	2018	1975	1624
TOTAL	21.0	246.7	5630.0	17300	3443	4296	3601

N/A = Not applicable for Double-Shell Tank Farms, and Single-Shell Tank Farms which have been declared Controlled, Clean and Stable (BX, TX, TY).

TABLE A-4. INVENTORY SUMMARY BY TANK FARM

January 31, 2001

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES (Kgallo AW	CC	CP	DC	DN	PD	NCPLX	DSSF	TOTAL	SOLIDS VOLUME SLUDGE	SALT CAKE	TOTAL
EAST														
A	1479	0	0	0	0	0	0	0	0	503	503	574	402	976
AN	5489	2491	0	1776	0	0	224	0	0	1741	3741	0	1748	1748
AP	5482	3638	0	1391	1089	716	38	0	0	2159	5393	0	89	89
AW	3982	2858	0	0	0	0	921	317	0	1251	2489	571	922	1493
AX	826	0	0	0	0	0	0	0	0	378	378	26	422	448
AY	774	1186	0	0	0	91	391	0	0	0	482	292	0	292
AZ	1914	63	1757	0	0	0	0	0	0	0	1757	157	0	157
B	1909	0	0	0	0	0	0	0	15	0	15	1211	683	1894
BX	1490	0	0	0	0	0	0	0	24	0	24	1259	207	1466
BY	4387	0	0	0	0	0	0	0	0	0	0	754	3633	4387
C	1784	0	0	0	0	1	0	0	125	0	126	1658	0	1658
Total	29516	10236	1757	3167	1089	808	1574	317	164	6032	14908	8502	8106	14608
WEST														
S	4929	0	0	0	0	0	0	0	75	1	76	1184	3669	4853
SX	3742	0	0	0	0	0	0	0	0	134	134	927	2681	3608
SY	2595	825	0	1264	0	811	0	0	0	0	2075	71	449	520
T	1877	0	0	0	0	0	0	0	29	0	29	1703	145	1848
TX	6810	0	0	0	0	0	0	0	9	0	9	697	6104	6801
TY	639	0	0	0	0	0	0	0	0	0	0	529	110	639
U	3239	0	0	0	0	0	0	0	36	33	69	537	2633	3170
Total	23831	825	0	1264	0	811	0	0	149	168	2392	5648	15791	21439
TOTAL	53347	11061	1757	4431	1089	1619	1574	317	313	6200	17300	12150	23897	36047

TABLE A-5. INVENTORY AND STATUS BY TANK - DOUBLE-SHELL TANKS

January 31, 2001

TANK STATUS								SOLIDS VOLUME					PHOTOS/VIDEOS		
TANK	WASTE MATL	TANK STATUS	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (1) (Kgal)	SUPER-NATANT LIQUID (Kgal)	SLUDGE (includes liquid) (Kgal)	SLUDGE LIQUID (15% porosity) (Kgal)	SALTCAKE (includes liquid) (Kgal)	SALTCAKE LIQUID (25% porosity) (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
AN TANK FARM STATUS															
AN-101	DN	SOUND	DRCVR	81.5	224	916	224	0	0	0	0	06/30/99			
AN-102	CC	SOUND	CWHT	382.2	1051	89	962	0	0	89	22	06/30/99			
AN-103	DSS	SOUND	CWHT	347.6	956	184	499	0	0	457	114	06/30/99	10/29/87		
AN-104	DSSF	SOUND	CWHT	382.5	1052	88	603	0	0	449	112	06/30/99	08/19/88		
AN-105	DSSF	SOUND	CWHT	410.2	1128	12	639	0	0	489	122	06/30/99	01/26/88		
AN-106	CC	SOUND	CWHT	13.8	38	1102	21	0	0	17	4	06/30/99			
AN-107	CC	SOUND	CWHT	378.2	1040	100	793	0	0	247	62	06/30/99	09/01/88		
7 DOUBLE-SHELL TANKS				TOTALS	5489	2491	3741	0	0	1748	436				
AP TANK FARM STATUS															
AP-101	DSSF	SOUND	DRCVR	405.1	1114	26	1114	0	0	0	0	05/01/89			
AP-102	CP	SOUND	DRCVR	396.0	1089	51	1089	0	0	0	0	07/11/89			
AP-103	CC	SOUND	DRCVR	102.5	282	858	282	0	0	0	0	05/31/96			
AP-104	CC	SOUND	DRCVR	403.3	1109	31	1109	0	0	0	0	10/13/88			
AP-105	DSSF	SOUND	CWHT	412.4	1134	6	1045	0	0	89	22	06/30/99		09/27/95	
AP-106	DC	SOUND	DRCVR	226.2	622	518	622	0	0	0	0	10/13/88			
AP-107	DC	SOUND	DRCVR	34.2	94	1046	94	0	0	0	0	10/13/88			
AP-108	DN	SOUND	DRCVR	13.8	38	1102	38	0	0	0	0	10/13/88			
8 DOUBLE-SHELL TANKS				TOTALS	5482	3638	5393	0	0	89	22				
AW TANK FARM STATUS															
AW-101	DSSF	SOUND	CWHT	409.5	1126	14	751	0	0	375	94	10/31/00	03/17/88		
AW-102	DN	SOUND	EVFD	314.9	866	274	836	0	0	30	8	01/31/01	02/02/83		
AW-103	PD	SOUND	DRCVR	184.7	508	632	145	316	79	47	12	06/30/99			
AW-104	DN	SOUND	DRCVR	114.9	316	824	85	0	0	231	58	06/30/99	02/02/83		
AW-105	PD	SOUND	DRCVR	155.3	427	713	172	255	38	0	0	06/30/99			
AW-106	DSSF	SOUND	SRCVR	268.7	739	401	500	0	0	239	60	06/30/99	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS	3982	2858	2489	571	117	922	232				

TABLE A-5. INVENTORY AND STATUS BY TANK - DOUBLE-SHELL TANKS

January 31, 2001

TANK STATUS													PHOTOS/VIDEOS		
TANK	WASTE MATL	TANK STATUS	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (1) (Kgal)	SUPER-NATANT LIQUID (Kgal)	SLUDGE (includes liquid) (Kgal)	SLUDGE LIQUID (15% porosity) (Kgal)	SALTCAKE (includes liquid) (Kgal)	SALTCAKE LIQUID (25% porosity) (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
							AY TANK FARM STATUS								
AY-101	DC	SOUND	DRCVR	72.4	199	781	91	108	16	0	0	06/30/99	12/28/82		
AY-102	DN	SOUND	DRCVR	209.1	575	405	391	184	28	0	0	10/31/00	04/28/81		
2 DOUBLE-SHELL TANKS				TOTALS	774	1186	482	292	44	0	0				
							AZ TANK FARM STATUS								
AZ-101	AW	SOUND	CWHT	333.5	917	63	865	52	8	0	0	06/30/98	08/18/83		
AZ-102	AW	SOUND	DRCVR	362.5	997	0	892	105	16	0	0	06/30/99	10/24/84		
2 DOUBLE-SHELL TANKS				TOTALS	1914	63	1757	157	24	0	0				
							SY TANK FARM STATUS								
SY-101	CC	SOUND	CWHT	353.1	971	169	888	0	0	83	21	06/30/99	04/12/89		
SY-102	DC	SOUND	DRCVR	320.7	882	258	811	71	11	0	0	06/30/99	04/29/81		
SY-103	CC	SOUND	CWHT	269.8	742	398	376	0	0	366	92	06/30/99	10/01/85		(a)
3 DOUBLE-SHELL TANKS				TOTALS	2595	825	2075	71	11	449	113				
GRAND TOTAL					20236	11061	15937	1091	196	3208	803				

Note: +/- 1 Kgal differences are the result of computer rounding

Available Space Calculations Used in this Document	
Tank Farms	(Most Conservative)
AN, AP, AW, SY	1,140,000 gal (414.5 1,140 Kgal
AY, AZ (Aging Wast	980,000 gal (356.4 i 980 Kgal

NOTE: Supernate + Sludge (includes liquid) + Saltcake (includes liquid) = Total Waste

(1) Available Space volumes include restricted space, - see Appendix C tables for allocation of these restrictions.

(a) SY-103 - from March 2000 thru August 2000, the total saltcake was mistakenly shown as total sludge, due to re-calculations and a new format used during that time. There is no sludge in this tank.

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								A TANK FARM STATUS								
A-101	DSSF	SOUND	/PI	877	494	95	0.0	14.1	590	574	3	380	09/30/99	08/21/85		(g)
A-102	DSSF	SOUND	IS/PI	41	4	8	0.0	39.5	12	4	15	22	07/27/89	07/20/89		
A-103	DSSF	ASMD LKR	IS/IP	371	5	45	0.0	111.0	50	43	366	0	06/03/88	12/28/88		
A-104	NCPLX	ASMD LKR	IS/IP	28	0	4	0.0	0.0	4	0	28	0	01/27/78	06/25/86		
A-105	NCPLX	ASMD LKR	IS/IP	37	0	0	0.0	0.0	0	0	37	0	10/31/00	08/20/86		
A-106	CP	SOUND	IS/IP	125	0	9	0.0	0.0	9	1	125	0	09/07/82	08/19/86		
6 SINGLE-SHELL TANKS			TOTALS	1479	503	161	0.0	164.6	665	622	574	402				
								AX TANK FARM STATUS								
AX-101	DSSF	SOUND	/PI	676	378	74	0.0	8.3	452	436	3	295	09/30/99	08/18/87		(h)
AX-102	CC	ASMD LKR	IS/IP	30	0	7	0.0	13.0	7	0	7	23	06/30/99	06/05/89		
AX-103	CC	SOUND	IS/IP	112	0	23	0.0	0.0	23	11	8	104	06/30/99	08/13/87		
AX-104	NCPLX	ASMD LKR	IS/IP	8	0	1	0.0	0.0	1	0	8	0	06/30/99	08/18/87		
4 SINGLE-SHELL TANKS			TOTALS:	826	378	105	0.0	21.3	483	447	26	422				
								B TANK FARM STATUS								
B-101	NCPLX	ASMD LKR	IS/IP	113	0	24	0.0	0.0	24	17	0	113	06/30/99	05/19/83		
B-102	NCPLX	SOUND	IS/IP	32	4	7	0.0	0.0	11	4	0	28	06/30/99	08/22/85		
B-103	NCPLX	ASMD LKR	IS/IP	59	0	11	0.0	0.0	11	3	0	59	06/30/99	10/13/88		
B-104	NCPLX	SOUND	IS/IP	371	1	45	0.0	0.0	46	42	309	61	06/30/99	10/13/88		
B-105	NCPLX	ASMD LKR	IS/IP	158	0	20	0.0	0.0	20	16	28	130	06/30/99	05/19/88		
B-106	NCPLX	SOUND	IS/IP	117	1	25	0.0	0.0	26	19	0	116	02/29/00	02/28/85		
B-107	NCPLX	ASMD LKR	IS/IP	165	1	22	0.0	0.0	23	19	93	71	06/30/99	02/28/85		
B-108	NCPLX	SOUND	IS/IP	94	0	15	0.0	0.0	15	11	53	41	06/30/99	05/10/85		
B-109	NCPLX	SOUND	IS/IP	127	0	21	0.0	0.0	21	17	63	64	06/30/99	04/02/85		
B-110	NCPLX	ASMD LKR	IS/IP	246	1	27	0.0	0.0	28	20	245	0	02/28/85	03/17/88		
B-111	NCPLX	ASMD LKR	IS/IP	237	1	23	0.0	0.0	24	29	236	0	06/28/85	06/26/85		
B-112	NCPLX	ASMD LKR	IS/IP	33	3	4	0.0	0.0	7	3	30	0	05/31/85	05/29/85		
B-201	NCPLX	ASMD LKR	IS/IP	29	1	4	0.0	0.0	5	1	28	0	04/28/82	11/12/86	06/23/95	
B-202	NCPLX	SOUND	IS/IP	27	0	4	0.0	0.0	4	0	27	0	05/31/85	05/29/85	06/15/95	
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	1	50	0	05/31/84	11/13/86		
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	1	49	0	05/31/84	10/22/87		
16 SINGLE-SHELL TANKS			TOTALS	1909	15	262	0.0	0.0	277	203	1211	683				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								BX TANK FARM STATUS								
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	4	0.0	0.0	5	1	42	0	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	0	0.0	0.0	0	0	96	0	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	71	9	4	0.0	0.0	13	9	62	0	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	93	3	4	0.0	17.4	7	3	90	0	02/29/00	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	4	0.0	15.0	9	5	46	0	06/30/99	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	4	0.0	14.0	4	0	38	0	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	36	0.0	23.1	37	33	344	0	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	4	0.0	0.0	4	0	26	0	07/31/79	05/05/94		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	25	0.0	8.2	25	20	193	0	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	3	28	0.0	1.5	31	26	133	71	06/30/99	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	5	0.0	116.9	6	2	25	136	06/30/99	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	9	0.0	4.1	10	7	164	0	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS			TOTALS:	1490	24	127	0.0	200.2	151	106	1259	207				
								BY TANK FARM STATUS								
BY-101	NCPLX	SOUND	IS/IP	387	0	28	0.0	35.8	28	24	109	278	05/30/84	09/19/89		
BY-102	NCPLX	SOUND	IS/PI	277	0	40	0.0	159.0	40	33	0	277	05/01/95	09/11/87	04/11/95	
BY-103	NCPLX	ASMD LKR	IS/PI	400	0	58	0.0	95.9	58	53	9	391	06/30/99	09/07/89	02/24/97	
BY-104	NCPLX	SOUND	IS/IP	326	0	40	0.0	329.5	40	36	150	176	06/30/99	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	121	0.0	0.0	121	111	48	455	08/31/99	07/01/86		
BY-106	NCPLX	ASMD LKR	/PI	562	0	132	0.0	63.7	132	119	84	478	12/31/98	11/04/82		
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	39	0.0	56.4	39	35	40	226	06/30/99	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	33	0.0	27.5	33	26	154	74	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	IS/PI	290	0	31	0.0	157.1	31	26	57	233	07/08/87	06/18/97		
BY-110	NCPLX	SOUND	IS/IP	398	0	21	0.0	213.3	21	17	103	295	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	14	0.0	313.2	14	6	0	459	06/30/99	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	24	0.0	116.4	24	12	0	291	06/30/99	04/14/88		
12 SINGLE-SHELL TANKS			TOTALS:	4387	0	581	0.0	1567.8	581	498	754	3633				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								C TANK FARM STATUS								
C-101	NCPLX	ASMD LKR	IS/IP	88	0	4	0.0	0.0	4	0	88	0	11/29/83	11/17/87		
C-102	DC	SOUND	IS/IP	316	0	62	0.0	46.7	62	55	316	0	09/30/95	05/18/76	08/24/95	
C-103	NCPLX	SOUND	/PI	198	79	18	0.0	0.0	97	83	119	0	12/31/98	07/28/87		
C-104	CC	SOUND	IS/IP	263	0	0	0.0	0.0	0	0	263	0	02/01/00	07/25/90		
C-105	NCPLX	SOUND	IS/PI	132	0	20	0.0	0.0	20	0	132	0	02/29/00	08/05/94	08/30/95	
C-106	NCPLX	SOUND	/PI	48	42	0	0.0	0.0	42	9	6	0	10/31/99	08/05/94	08/08/94	
C-107	DC	SOUND	IS/IP	257	0	30	0.0	40.8	30	25	257	0	06/30/99	00/00/00		
C-108	NCPLX	SOUND	IS/IP	66	0	4	0.0	0.0	4	0	66	0	02/24/84	12/05/74	11/17/94	
C-109	NCPLX	SOUND	IS/IP	66	4	4	0.0	0.0	8	4	62	0	11/29/83	01/30/76		
C-110	DC	ASMD LKR	IS/IP	178	1	37	0.0	15.5	38	30	177	0	06/14/95	08/12/86	05/23/95	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	4	0.0	0.0	4	0	57	0	04/28/82	02/25/70	02/02/95	
C-112	NCPLX	SOUND	IS/IP	104	0	6	0.0	0.0	6	1	104	0	09/18/90	09/18/90		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	03/31/82	12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	01/19/79	12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	04/28/82	12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	04/28/82	12/09/86		
16 SINGLE-SHELL TANKS			TOTALS:	1784	126	189	0.0	103.0	315	207	1658	0				
								S TANK FARM STATUS								
S-101	NCPLX	SOUND	/PI	427	12	83	0.0	0.0	95	80	211	204	12/31/98	03/18/88		
S-102	DSSF	SOUND	/PI	492	0	93	0.0	56.8	93	89	105	387	05/31/00	03/18/88		(c)
S-103	DSSF	SOUND	IS/PI	237	1	45	0.0	23.9	46	39	9	227	04/30/00	06/01/89	01/28/00	
S-104	NCPLX	ASMD LKR	IS/IP	294	1	34	0.0	0.0	35	31	293	0	12/20/84	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	42	0.0	114.3	42	33	2	454	09/26/88	04/12/89		
S-106	NCPLX	SOUND	/PI	328	0	10	0.0	203.6	10	2	0	328	09/30/00	03/17/89	01/28/00	(a)
S-107	NCPLX	SOUND	/PI	376	14	61	0.0	0.0	75	61	293	69	06/30/99	03/12/87		
S-108	NCPLX	SOUND	IS/PI	432	0	0	0.0	199.8	0	0	5	427	10/01/99	03/12/87	12/03/96	
S-109	NCPLX	SOUND	/PI	473	0	59	0.6	145.2	59	49	13	460	12/31/00	12/31/98		(j)
S-110	NCPLX	SOUND	IS/PI	390	0	30	0.0	203.1	30	27	131	259	05/14/92	03/12/87	12/11/96	
S-111	NCPLX	SOUND	/PI	501	48	82	0.0	3.3	130	97	116	337	09/30/99	08/10/89		
S-112	NCPLX	SOUND	/PI	523	0	81	0.0	125.1	81	70	6	517	12/31/98	03/24/87		
12 SINGLE-SHELL TANKS			TOTALS:	4929	76	620	0.6	1075.1	696	578	1184	3669				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								SX TANK FARM STATUS								
SX-101	DC	SOUND	/PI	429	0	93	0.0	19.2	93	80	0	429	12/31/00	03/10/89		(l)
SX-102	DSSF	SOUND	/PI	514	134	95	0.0	0.0	229	216	0	380	04/30/00	01/07/88		
SX-103	NCPLX	SOUND	/PI	530	0	43	10.5	104.0	43	28	115	415	01/31/01	12/17/87		(k)
SX-104	DSSF	ASMD LKR	IS/PI	446	0	48	0.0	231.3	48	44	136	310	04/30/00	09/08/88	02/04/98	
SX-105	DSSF	SOUND	/PI	488	0	4	7.3	149.3	4	-8	65	423	-1/31/01	06/15/88		(f)
SX-106	NCPLX	SOUND	IS/PI	397	0	37	0.0	147.5	37	31	0	397	05/31/99	06/01/89		
SX-107	NCPLX	ASMD LKR	IS/IP	102	0	0	0.0	0.0	0	0	85	17	10/31/00	03/06/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	0	0.0	0.0	0	0	87	0	12/31/93	03/06/87		
SX-109	NCPLX	ASMD LKR	IS/IP	249	0	0	0.0	0.0	0	0	60	189	10/31/00	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	122	0	8	0.0	0.0	8	3	122	0	06/30/99	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	108	0	6	0.0	0.0	6	1	108	0	06/30/99	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	31	0	0	0.0	0.0	0	0	31	0	06/30/99	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	165	0	0	0.0	0.0	0	0	44	121	10/31/00	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS			TOTALS:	3742	134	334	17.8	651.3	468	395	927	2681				
								T TANK FARM STATUS								
T-101	NCPLX	ASMD LKR	IS/PI	102	1	20	0.0	25.3	21	16	37	64	06/30/99	04/07/93		
T-102	NCPLX	SOUND	IS/IP	32	13	3	0.0	0.0	16	11	19	0	08/31/84	06/28/89		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	3	0.0	0.0	7	3	23	0	11/29/83	07/03/84		
T-104	NCPLX	SOUND	IS/PI	317	0	31	0.0	149.5	31	27	317	0	12/31/99	06/29/89	10/07/99	
T-105	NCPLX	SOUND	IS/IP	98	0	5	0.0	0.0	5	0	98	0	05/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	2	19	0	04/28/82	06/29/89		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	34	0.0	11.0	34	20	173	0	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	5	0.0	0.0	5	0	21	23	06/30/99	07/17/84		

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
T-109	NCPLX	ASMD LKR	IS/IP	58	0	10	0.0	0.0	10	3	0	58	06/30/99	02/25/93		
T-110	NCPLX	SOUND	IS/PI	369	1	48	0.0	50.3	48	43	368	0	01/31/00	07/12/84	10/07/99	
T-111	NCPLX	ASMD LKR	IS/PI	446	0	38	0.0	9.6	38	35	446	0	04/18/94	04/13/94	02/13/95	
T-112	NCPLX	SOUND	IS/IP	67	7	4	0.0	0.0	11	7	60	0	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	4	0.0	0.0	5	1	28	0	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	3	0.0	0.0	3	0	21	0	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	5	0.0	0.0	5	0	35	0	01/31/78	08/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	5	0.0	0.0	5	0	38	0	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS			TOTALS:	1877	29	218	0.0	245.7	246	168	1703	145				
							TX TANK FARM STATUS									
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	8	0.0	0.0	11	7	74	10	06/30/99	10/24/85		
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	27	0.0	94.4	27	16	0	217	08/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	18	0.0	68.3	18	11	0	157	06/30/99	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	5	9	0.0	3.6	14	9	23	37	06/30/99	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	25	0.0	121.5	25	14	0	609	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	341	0	37	0.0	134.6	37	30	0	341	06/30/99	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	6	0.0	0.0	7	1	8	27	06/30/99	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	8	0.0	13.7	8	1	6	128	06/30/99	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	6	0.0	72.3	6	2	384	0	06/30/99	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	14	0.0	115.1	14	10	37	425	06/30/99	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	10	0.0	98.4	10	6	43	327	06/30/99	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	26	0.0	94.0	26	21	0	649	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	653	0	30	0.0	19.2	30	0	0	653	10/31/00	04/11/83	09/23/94	
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	17	0.0	104.3	17	11	4	531	06/30/99	04/11/83	02/17/95	
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	568	0	25	0.0	99.1	25	15	0	568	06/30/99	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	21	0.0	23.8	21	17	68	563	06/30/99	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	10	0.0	54.3	10	5	29	597	06/30/99	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	286	0	0	0.0	89.1	0	0	21	265	02/01/00	12/19/79		
18 SINGLE-SHELL TANKS			TOTALS:	6810	9	297	0.0	1205.7	306	176	697	6104				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								TY TANK FARM STATUS								
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	2	0.0	8.2	2	0	72	46	06/30/99	08/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	12	0.0	6.6	12	5	0	64	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	20	0.0	11.5	20	16	162	0	07/09/82	08/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	43	0	4	0.0	0.0	4	0	43	0	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	12	0.0	3.6	12	10	231	0	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	21	0	3	0.0	0.0	3	0	21	0	06/30/99	08/22/89		
6 SINGLE-SHELL TANKS			TOTALS:	639	0	53	0.0	29.9	53	31	529	110				
								U TANK FARM STATUS								
U-101	NCPLX	ASMD LKR	IS/IP	25	3	3	0.0	0.0	6	2	22	0	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	301	0	29	2.6	74.0	29	19	43	258	01/31/01	06/08/89		(e)
U-103	NCPLX	SOUND	IS/PI	418	1	33	0.0	98.9	34	28	13	404	05/31/00	09/13/88		
U-104	NCPLX	ASMD LKR	IS/IP	122	0	0	0.0	0.0	0	0	79	43	06/30/99	08/10/89		
U-105	NCPLX	SOUND	/PI	331	0	37	0.0	87.5	37	33	32	299	07/31/00	07/07/88		(b)
U-106	NCPLX	SOUND	/PI	187	0	29	0.0	39.1	29	17	0	187	12/31/00	07/07/88		(i)
U-107	DSSF	SOUND	/PI	408	33	92	0.0	0.0	125	115	15	360	12/31/98	10/27/88		
U-108	NCPLX	SOUND	/PI	468	24	108	0.0	0.0	132	124	29	415	12/31/98	09/12/84		
U-109	NCPLX	SOUND	/PI	399	0	61	0.0	65.9	61	52	35	364	12/31/00	07/07/88		(d)
U-110	NCPLX	ASMD LKR	IS/PI	186	0	18	0.0	0.0	18	14	186	0	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	80	0.0	0.0	80	71	26	303	12/31/98	06/23/88		
U-112	NCPLX	ASMD LKR	IS/IP	49	4	4	0.0	0.0	8	4	45	0	02/10/84	08/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	1	0.0	0.0	2	1	4	0	08/15/79	08/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	1	0.0	0.0	2	1	4	0	08/15/79	08/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	1	2	0	08/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	1	2	0	08/15/79	06/13/89		
16 SINGLE-SHELL TANKS			TOTALS:	3239	69	496	2.6	365.4	565	483	537	2633				
GRAND TOTAL				33111	1363	3443	21.0	5630.0	4806	3914	11059	20689				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate. The category "Interim Isolated (II) was changed to Intrusion Prevention (IP) in June 1993.

Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Cognizant Engineer

Porosity values are 25% for saltcake and 15% for sludge, per HNF-2978, Rev. 1, "Updated Pumpable Liquid Volume Estimates and Jet Pump Durations for Interim Stabilization of Remaining Single-Shell Tanks," September 1999, with the exception of those tanks which have been interim stabilized and the porosities recalculated.

Tanks A-105, C-105, C-106, S-111, SX-107, SX-109, SX-114, and TX-113 were updated in October 2000 issue per BBI dated October 2000.

(a) S-106 Pumping was discontinued on January 3, 2000, to allow the waste levels to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria. Waste levels have stabilized; Interim Stabilization documentation has been initiated.

Note: in April 2000 issue, volumes were changed to reflect HNF-2978; however, because S-106 had been pumped and was "holding" to allow waste to stabilize, the volumes should not have been changed. In September 2000 issue, volumes were changed back to reflect actual pumping.

(b) U-105 Pumping was discontinued July 13, 2000, due to pump failure. Waste levels are being allowed to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets interim Stabilization. As of January 31, 2001, waste levels had not yet stabilized.

(c) S-102 Following information from Cognizant Engineer

Pumping commenced March 18, 1999. Many pumping problems occurred over the following months, and the pump has been replaced several times. Pumping was interrupted again in June 2000.
Remaining volumes are based on the original estimate volumes in HNF-2978, Rev. 1.

Total Waste: 492.2 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial: 93.3 Kgal
Pumped this month: 0.0 Kgal
Total Pumped: 56.8 Kgal
Drainable Liquid Remaining: 93.3 Kgal
Pumpable Liquid Remaining: 88.9 Kgal
Sludge: 105.0 Kgal
Saltcake: 387.2 Kgal

During June 2000, a total of 1,857 gal of fluid was removed with 1,989 gal of water added by flushes/priming for a net addition of 132 gal of tank waste. In addition, 2,129 gal of dilution water and 245 gal of water were added for transfer line flushes. (No pumping since June 2000).

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

(d) U-109 Following information from Cognizant Engineer

Pumping began March 11, 2000. Saltcake volume is adjusted to correspond to current waste removal. Remaining volumes based on HNF-2978, Rev. 2.
Pumping was shut down on December 3, 2000, due to jet pump failure. Attempts to restart the pump have been unsuccessful. The tank is currently under observation mode to determine eligibility for interim stabilization with major equipment failure.

Tank Waste: 399.1 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial: 61.1 Kgal
Pumped this month: 0.6 Kgal
Total Pumped: 65.9 Kgal
Drainable Liquid Remaining: 61.1 Kgal
Pumpable Liquid Remaining: 52.1 Kgal
Sludge: 35.0 Kgal
Saltcake: 364. Kgal

During December 2000, a total of 724 gal of fluid was removed with 103 gal of water added by pump priming/equipment flushes, for a net removal of 621 gal of tank waste.
In addition, 983 gal of dilution water and 100 gal of water were used for transfer line flushes. Following jet pump failure, an additional 458 gal of flush water was added. This was not reflected in the above volumes. (No pumping since December 2000)

(e) U-102 Following information from Cognizant Engineer

Pumping began in this tank on January 20, 2000. Saltcake volume is adjusted to correspond to current waste removal.
Remaining volumes are based on HNF-2978, Rev. 2.

Total Waste: 300.9 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 29.0 Kgal
Pumped this Month: 2.6 Kgal
Total Pumped: 74.0 Kgal
Drainable Liquid Remaining: 29.0 Kgal
Pumpable Liquid Remaining: 19.0 Kgal
Sludge: 43.0 Kgal
Saltcake: 257.9 Kgal

During January 2001, a total of 2,804 gal of fluid was removed with 247 gal of water added by pump priming/equipment flushes, for a net removal of 2,557 gal of waste.
In addition, 8,728 gal of water were used as dilution and 1,843 gal of water were used for transfer line flushes.

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENT

FOOTNOTES:

(f) SX-105 Following information from Cognizant Engineer:

Saltwell pumping began August 8, 2000.
Remaining volumes are based on HNF-2978, Rev. 2.

Tank Waste: 487.7 Kgal
Supernate: 0.0 Kgal
Drainable Interstial Liquid: 3.7 Kgal
Pumped this month: 7.3 Kgal
Total Pumped: 149.3 Kgal
Drainable Liquid Remaining: 3.7 Kgal
Pumpable Liquid Remaining: -8.3 Kgal (*)
Sludge: 65.0 Kgal
Saltcake: 430.0 Kgal

In January 2001, a total of 7,735 gal of fluid was removed with 447 gal of water added by pump priming and system flushes, for a net removal of 7,288 gal of waste.
In addition, 10,820 gal of dilution water and 364 gal of water for transfer lines flushes were used.
(*) Minus 1,000 gal estimate for PLR because there is more pumpable liquid in the tank than originally estimated. This is due to the face that approx. 118,000 gal of supernate was in the tank at the start of pumping.

(g) A-101 Following information from Cognizant Engineer

Pumping began on May 6, 2000.
Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

Total Waste: 876.8 Kgal
Supernate: 493.8 Kgal
Drainable Interstitial Liquid: 95.0 Kgal
Pumped this Month: 0.0 Kgal
Total Pumped: 14.1 Kgal
Drainable Liquid Remaining: 590.0 Kgal
Pumpable Liquid Remaining: 573.6 Kgal
Sludge: 3.0 Kgal
Saltcake: 380.0 Kgal

During August 2000, a total of 0 gal of fluid was removed from the tank with 273 of water added by pump priming/equiment flushes for a net removal of -273 gal of waste.
This number will be subtracted against the next waste removed.
In addition, 0 gal of water was used as dilution and 0 gal of water was used for transfer line flushes. (No pumping since August 2000).

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

(h) AX-101 Following informtion from Cognizant Engineer

Pumping began July 29, 2000.
Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

Total Waste: 675.6 Kgal
Supernate: 377.6 Kgal
Drainable Interstitial Liquid: 73.7 Kgal
Pumped this month: 0.0 Kgal
Total pumped: 8.366 Kgal
Drainable Liquid Remaining: 451.8 Kgal
Pumpable Liquid Remaing: 434.6 Kgal
Sludge: 3.0 Kgal
Saltcake: 295.0 Kgal

In August 2000, a total of 7,292 gal of fluid was removed from the tank with 241 gal of water added by pump priming/equipment, for a net removal of 7,051 gal of waste.
In addition, 18,332 gal of water were used as dilution and 930 gal of water were used for transfer line flushes. (No pumping since August 2000).

(i) U-106 Following information from Cognizant Engineer:

Pumping began August 24, 2000. Remaining volumes are based on HNF-2978, Rev. 2.
Pumping rate has fallen below the 0.05 GPM criteria. The pump failed on December 29, 2000. This tank is currently in observation mode to determine eligibility for interim stabilization.

Total Waste: 186.8 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 28.6 Kgal
Pumped this month: 0.7 Kgal
Total Pumped: 39.1 Kgal
Drainable Liquid Remaining: 28.6 Kgal
Pumpable Liquid Remaining: 16.9 Kal
Sludge: 0.0 Kgal
Saltcake: 186.8 Kgal

In December 2000, a total of 1,814 gal of fluid was removed with a total of 1,111 gal of water added by pump priming/equipment flushes, for a net removal of 697 gal of waste.
In addition, 5,118 gal of water were used as dilution and 254 gal of water were used for transfer line flushes. (No pumping since December 2000)

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

(j) S-109 Following informatio from Cognizant Engineer:

Pumping began September 23, 2000.
Remaining volumes are based on HNF-2978, Rev. 2.
The pumping rate dropped below .05 gpm and the pump was sut down on January 27, 2001. The tank is now being evaluated to determine if it can be interim stabilized.

Total Waste: 472.8 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 59.2 Kgal
Pumped this Month: 0.6 Kgal
Total Pumped: 145.2 Kgal (includes 111.0 Kgal pumped in 1979)
Drainable Liquid Remaining: 59.2 Kgal
Pumpable Liquid Remaining: 48.9 Kgal
Sludge: 13.0 Kgal
Saltcake: 459.8 Kgal

In January 2001, a total of 2,136 gal of fluid was removed with 1,550 gal of water added by pump priming/system flushes, for a net removal of 586 gal of waste.
In addition, 0 gal of water were used for dilution, and 237 gal of water were used for transfer line flushes.

(k) SX-103 Following information from Cognizant Engineer:

Pumping began October 26, 2000.
Remaining volumes are based on HNF-2978, Rev. 2.

Total Waste: 530.5 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 43.0 Kgal
Pumped this month: 10.5 Kgal
Total Pumped: 104.0 Kgal
Drainable Liquid Remaining: 43.0 Kgal
Pumpable Liquid Remaining: 28.0 Kal
Sludge: 115.0 Kgal
Saltcake: 415.0 Kgal

In January 2001, a total of 10,611 gal of fluid was removed with a total of 126 gal of water added by pump priming/equipment flushes, for a net removal of 10,485 gal of waste.
In addition, 9,368 gal of water were used as dilution and 377 gal of water were used for transfer line flushes.

As of December 28, 2000, tank level indicated by neutron ILL dcreased to 105.9 inches while the ENRAF decreased to 197.0 inches. Also, in December, the waste pumping rate declined from about 1.5 gpm to 0.5 gpm.

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

January 31, 2001

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

(i) SX-101 Following information from Cognizant Engineer:

Pumping began November 22, 2000
Remaining volumes are based on HNF-2978, Rev 2. Saltcake volume is adjusted to correspond to current waste removal.

Total Waste: 428.8 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial: 92.8 Kgal
Pumped this Month: 6.9 Kgal
Total Pumped: 19.2 Kgal
Drainable Liquid Remaining: 92.8 Kgal
Pumpable Liquid Remaining: 86.7 Kgal
Sludge: 0.0 Kgal
Saltcake: 428.8 Kgal

During December, 2000, a total of 7,264 gal of fluid was removed with a total of 407 gal of water added by pump priming/equipment flushes, for a net removal of 6,857 gal of waste.
In addition, 9,176 gal of water were used as dilution and 0 gal were used for transfer line flushes.
Following pump failure on December 9, 2000, an additional 461 gal of flush water was added. This was not reflected in the above volumes.

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APPENDIX B

PERFORMANCE SUMMARY

TABLE B-1. SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANK (DST) SYSTEM
January 31, 2001

All volumes in Kgallons

- The DST system received waste additions from SST Stabilization, Tank Farms, WESF & A-350 in January.
- There was a net change of +88,000 gallons in the DST system for January 2001.
- The total DST inventory as of January 31, 2001 was 21.126 million gallons.
- There were 0 Kgals of Saltwell Liquid (SWL) pumped to the East Area DSTs (101-AN) in January.
- There were ~55 Kgals of SWL (21 Kgals SWL & 34 Kgals H2O) pumped to the West Area DSTs (102-SY) in January.
- The SWL numbers are preliminary and are subject to change once cognizant engineers do a validation, the volumes reported contain actual waste volume plus any water added for dilution and transfer line flushes.
- There were ~36,000 gallons of caustic (NaOH) (four transfers), added to Tank 101-AY in January, ~1000 gallons of water was used to flush the waste transfer system after the caustic additions.
- ~801 Kgals of Tank 104-AW waste was transferred to Tank 102-AW (evaporator feed tank) in January, this transfer is in support of evaporator campaign 01-01 which is scheduled to begin in early March 2001.
- Tank 101-SY was moved from the "Watch List Space" category in conjunction with it being removed from the "Flammable Watch List" category by the Department of Energy (DOE) in January 2001.
- Tank 101-SY was temporarily moved to the "Restricted Space" category in January 2001, once required documentations is complete Tank 101-SY will be moved to the "Non-Allocated Space" category and then be available for waste storage use.

JANUARY 2001 DST WASTE RECEIPTS					
FACILITY GENERATIONS		OTHER GAINS ASSOCIATED WITH		OTHER LOSSES ASSOCIATED WITH	
SWL (West)	+55 Kgal (2SY)	SLURRY	+0 Kgal	SLURRY	-4 Kgal
Caustic (NaOH)	+37 Kgal (1AY)	CONDENSATE	+0 Kgal	CONDENSATE	-14 Kgal
Tank Farms	+16 Kgal (2AW,1AY,1AZ)	INSTRUMENTATION	+0 Kgal	INSTRUMENTATION	-0 Kgal
WESF	+5 Kgal (8AP)	UNKNOWN	+1 Kgal	UNKNOWN	-8 Kgal
TOTAL	+113 Kgal	TOTAL=	+1 Kgal	TOTAL=	-26 Kgal

PROJECTED VERSUS ACTUAL WASTE VOLUMES						
	ACTUAL DST WASTE RECEIPTS	PROJECTED DST WASTE RECEIPTS (1)	MISC. DST CHANGES (+/-)	PROJECTED WVR (1)	NET DST CHANGE	TOTAL DST VOLUME
OCT00	222	155	-24	0	198	20653
NOV00	261	262	-14	0	247	20900
DEC00	139	300	-1	0	138	21038
JAN01	113	397	-25	0	88	21126
FEB01		303		0		
MAR01		-283		-684		
APR01		321		0		
MAY01		302		0		
JUN01		334		0		
JUL01		296		0		
AUG01		289		0		
SEP01		282		0		

(1): The "PROJECTED DST WASTE RECEIPTS" and "WVR" numbers were updated in November 2000, the projected volumes will be updated as new and/or more accurate information is obtained. The projected volumes reported are the most current available, as supplied by cognizant engineers.

242-A Evaporator Waste Volume Reduction:	
Campaign 94-1 (04/15/94 - 06/13/94)	-2417
Campaign 94-2 (09/22/94 - 11/18/94)	-2787
Campaign 95-1 (06/09/95 - 07/26/95)	-2161
Campaign 96-1 (05/07/96 - 05/25/96)	-1117
Campaign 97-1 (03/24/97 - 04/02/97)	-351
Campaign 97-2 (09/16/97 - 09/30/97)	-653
Campaign 99-1 (07/24/99 - 08/15/99)	-818
Campaign 00-1 (04/20/00 - 05/05/00)	-682
Total waste reduction (WVR) since restart on 4/15/94	**-10986**

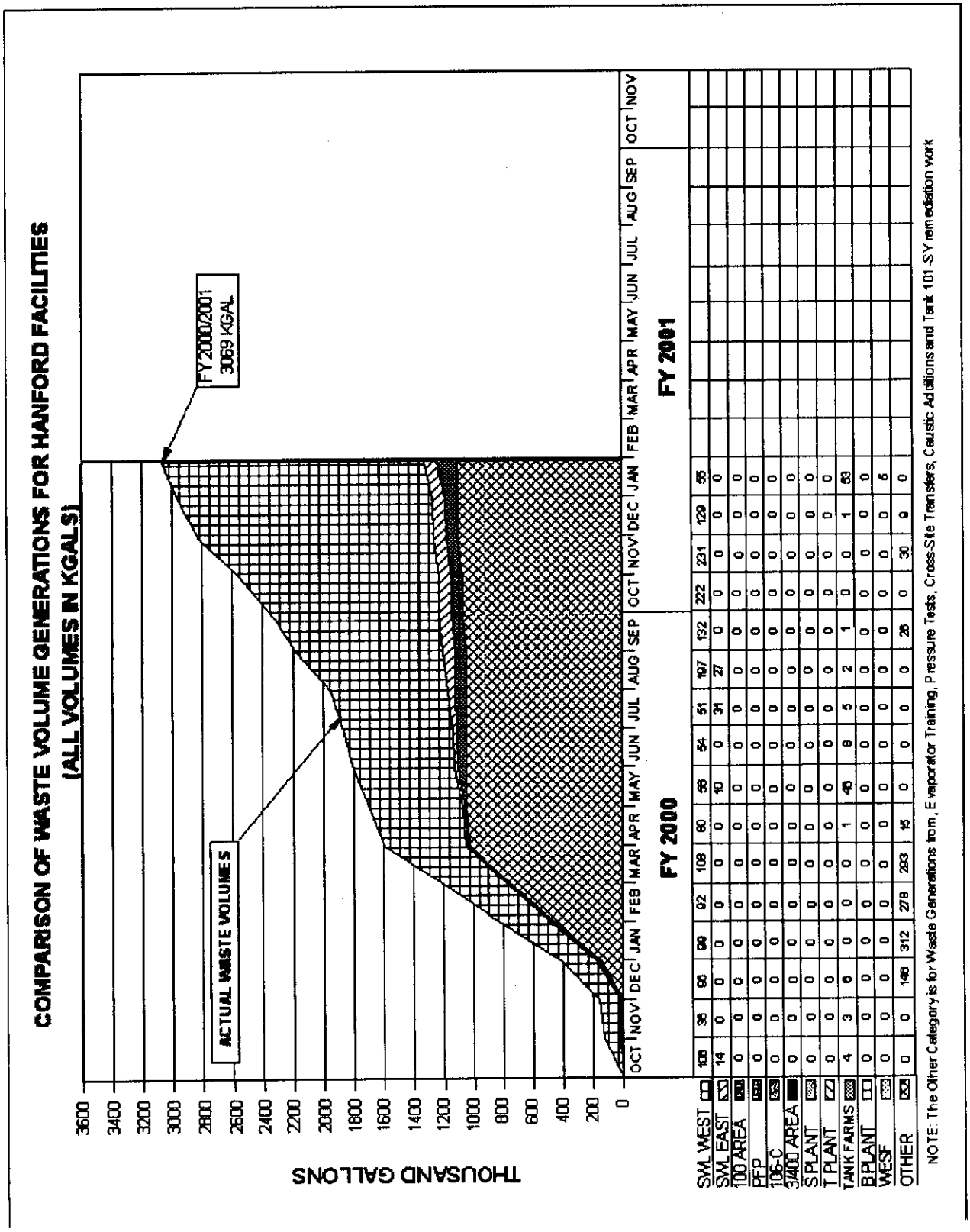

Figure B-1. Comparison of Projected Versus Actual Waste Volumes for Hanford Facilities

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APPENDIX C

DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION

Table C-1. Double-Shell Tank Waste Inventory - January 31, 2001

TOTAL AVAILABLE DST SPACE	
NON-AGING =	27360
AGING =	3920
TOTAL=	31280

MONTHLY INVENTORY CHANGE	
12/00 TOTAL	21038
01/01 TOTAL	21126
CHANGE=	88

TANK NAME	WASTE TYPE	TOTAL INVENTORY (1)	TOTAL SUPERNATE	TOTAL SOLIDS (3)	SALTCAKE (2)	SALTCAKE LIQUID	SLUDGE (2)	SLUDGE LIQUID	REMAINING UNUSED TANK SPACE
241-AN-101	DN	224	224	0	0	0	0	0	916
241-AN-102	CC	1051	962	89	89	22	0	0	89
241-AN-103	DSS	956	499	457	457	114	0	0	184
241-AN-104	DSSF	1052	603	449	449	112	0	0	88
241-AN-105	DSSF	1128	639	489	489	122	0	0	12
241-AN-106	CC	38	21	17	17	4	0	0	1102
241-AN-107	CC	1040	793	247	247	62	0	0	100
241-AP-101	DSSF	1114	1114	0	0	0	0	0	26
241-AP-102	CP	1089	1089	0	0	0	0	0	51
241-AP-103	CC	282	282	0	0	0	0	0	858
241-AP-104	CC	1109	1109	0	0	0	0	0	31
241-AP-105	DSSF	1134	1045	89	89	22	0	0	6
241-AP-106	DC	622	622	0	0	0	0	0	518
241-AP-107	DC	984	984	0	0	0	0	0	156
241-AP-108	DN	38	38	0	0	0	0	0	1102
241-AW-101	DSSF	1126	751	375	375	94	0	0	14
241-AW-102	DN	866	836	30	30	8	0	0	274
241-AW-103	NCRW	508	145	363	47	12	316	79	632
241-AW-104	DN	316	85	231	231	58	0	0	824
241-AW-105	NCRW	427	172	255	0	0	255	38	713
241-AW-106	DSSF	739	500	239	239	60	0	0	401
241-AY-101	DC	199	91	108	0	0	108	16	781
241-AY-102	DN	575	391	184	0	0	184	28	405
241-AZ-101	NCAW	917	865	52	0	0	52	8	63
241-AZ-102	NCAW	997	892	105	0	0	105	16	0
241-SY-101	CC	971	888	83	83	21	0	0	169
241-SY-102	DC	882	811	71	0	0	71	11	258
241-SY-103	CC	742	376	366	366	92	0	0	398
		21126	16827	4299	3208	802	1091	195	10171

NOTE: All Volumes in Kilo-Gallons (Kgals)

(1) Total Inventory = (Total Supernate + Total Solids)

(2) Saltcake Includes Saltcake Liquids; Sludge Includes Sludge Liquid

(3) Total Solids = (Saltcake + Sludge)

Tank Space Usage

TANK SPACE CHANGE	
12/00 TANK SPACE	10259
01/01 TANK SPACE	10171
CHANGE=	-88

OPERATIONAL SPACE	
AP-108=	1102
AW-102=	274
AW-105=	713
AW-106=	401
SY-102=	258
TOTAL=	2748

RESTRICTED SPACE	
AN-102=	89
AN-107=	100
AP-102=	51
AZ-101=	63
AZ-102=	0
SY-101=	169
TOTAL=	503

WATCH LIST SPACE	
AN-103=	184
AN-104=	88
AN-105=	12
AW-101=	14
SY-103=	398
TOTAL=	696

NON-ALLOCATED SPACE	
AN-101=	916
AN-106=	1102
AP-101=	26
AP-103=	858
AP-104=	31
AP-105=	6
AP-106=	518
AP-107=	156
AW-103=	632
AW-104=	824
AY-101=	781
AY-102=	405
TOTAL=	6255
EMERGENCY SPACE	-1140
LAW or HLW RETURN	-1140
REMAINING SPACE	3975

Inventory Calculation by Waste Type:

DILUTE SUPERNATE (DN)	
AN-101=	224
AP-108=	38
AW-102=	836
AW-103=	145
AW-104=	85
AW-105=	172
AY-102=	391
TOTAL DN=	1891
TOTAL SOLIDS=	1053

SLURRY SUPERNATE (DSS/DSSF)	
AN-103=	499
AN-104=	603
AN-105=	639
AP-101=	1114
AP-105=	1045
AW-101=	751
AW-106=	500
TOTAL DSS/DSS	5151
TOTAL SOLIDS=	2098

COMPLEXED SUPERNATE (DC\CC)	
AN-102=	962
AN-106=	21
AN-107=	793
AP-103=	282
AP-104=	1109
AP-106=	622
AP-107=	984
AY-101=	91
SY-101=	888
SY-102=	811
SY-103=	376
TOTAL DC/CC=	8929
TOTAL SOLIDS	981

AGING SUPERNATE (AW)	
AZ-101=	865
AZ-102=	892
TOTAL AW=	1757
TOTAL SOLIDS	157

PHOSPHATE SUPERNATE (CP)	
TOTAL CP=	1089

DST SLUDGE / SALTCAKE LIQUID			
AN-102=	22	AW-104=	58
AN-103=	114	AW-105=	38
AN-104=	112	AW-106=	60
AN-105=	122	AY-101=	16
AN-106=	4	AY-102=	28
AN-107=	62	AZ-101=	8
AP-105=	22	AZ-102=	16
AW-101=	94	SY-101=	21
AW-102=	8	SY-102=	11
AW-103=	91	SY-103=	92
TOTAL SLUDGE / SALTCAKE LIQUID=			997

GRAND TOTALS	
DILUTE SUPERNATE (DN/DC) =	4308
SLURRY (DSS/DSSF)=	5151
CONCENTRATED COMPLEXED (CC)=	4522
CONCENTRATED PHOSPHATE (CP)=	1089
AGING SUPERNATE (AW)=	1757
DST SOLIDS (NO LIQUID)=	3302
DST SLUDGE / SALTCAKE LIQUID=	997
TOTAL=	21126

Table C-2. Double-Shell Tank Waste Inventory - January 31, 2001

TOTAL AVAILABLE USABLE AS OF JANUARY 31, 2001 =			**10171 KGALS**
WATCH LIST TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
Unusable DST Headspace - Due to Special Restrictions	AN-103	DSS	184 KGALS
Placed on the Tanks, as Stated in the "Wyden Bill"	AN-104	DSSF	88 KGALS
	AN-105	DSSF	12 KGALS
	AW-101	DSSF	14 KGALS
	SY-103	CC	398 KGALS
		TOTAL=	**696 KGALS**
		AVAILABLE TANK SPACE=	10171 KGALS
		MINUS WATCH LIST SPACE=	-696 KGALS
TOTAL AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS=			**9475 KGALS**
RESTRICTED TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
DST Headspace Available to Store Only Specific Waste Typ	AN-102	CC	89 KGALS
	AN-107	CC	100 KGALS
	AP-102	CP	51 KGALS
	AZ-101	AW	63 KGALS
	AZ-102	AW	0 KGALS
	SY-101	CC	169 KGALS
		TOTAL=	**472 KGALS**
AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS=			9475 KGALS
		MINUS RESTRICED SPACE=	-472 KGALS
TOTAL AVAILABLE SPACE AFTER RESTRICTED SPACE DEDUCTIONS=			**9003 KGALS**
OPERATIONAL TANK SPACE	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
DST Headspace Available For Facility Generated	AP-108	DN	1102 KGALS
Waste and 242-A Evaporator Operations	AW-102	DN	274 KGALS
	AW-105	NCRW	713 KGALS
	AW-106	DSSF	401 KGALS
	SY-102	DC	258 KGALS
		TOTAL=	**2748 KGALS**
AVAILABLE SPACE AFTER RESTRICTED SPACE DEDUCTIONS=			9003 KGALS
		MINUS OPERATIONAL SPACE=	-2748 KGALS
TOTAL AVAILABLE SPACE AFTER OPERATIONAL SPACE DEDUCTIONS=			**6255 KGALS**
NON-ALLOCATED TANK SPACE	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
Non-Allocated DST Headspace	AN-101	DN	916 KGALS
	AN-106	CC	1102 KGALS
	AP-101	DSSF	26 KGALS
	AP-103	CC	858 KGALS
	AP-104	CC	31 KGALS
	AP-105	DSSF	6 KGALS
	AP-106	DC	518 KGALS
	AP-107	DC	156 KGALS
	AW-103	NCRW	632 KGALS
	AW-104	DN	824 KGALS
	AY-101	DC	781 KGALS
	AY-102	DN	405 KGALS
TOTAL NON-ALLOCATED TANK SPACE=			**6255 KGALS**
EMERGENCY TANK SPACE			**-1140 KGALS**
LAW or HLW RETURN SPACE:			**-1140 KGALS**
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS			**3975 KGALS**

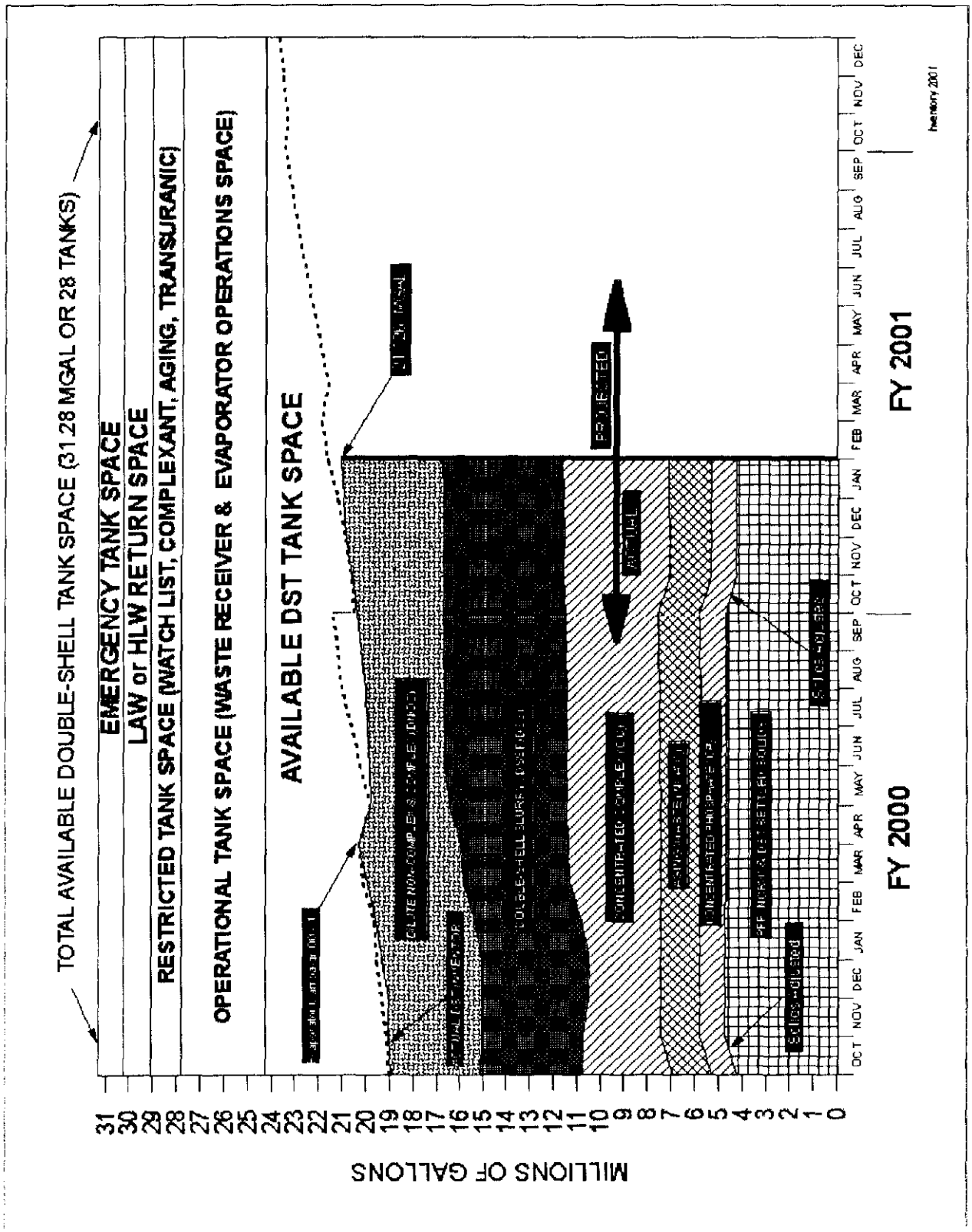

Figure C-1. Total Double-Shell Tank Inventory

APPENDIX D

WASTE TANK SURVEILLANCE MONITORING TABLES

TABLE D-1. TEMPERATURE MONITORING IN WATCH LIST TANKS (Sheet 1 of 2)

January 31, 2001

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "*Safety Measures for Waste Tanks at Hanford Nuclear Reservation,*" (1990), because they "... may have a serious potential for release of high-level waste due to uncontrolled increases in temperature or presssure."

All Watch List tanks are reviewed for increasing temperature trends. Temperatures in these tanks are monitored by the Tank Monitor And Control System (TMACS), unless indicated otherwise.

Temperatures are taken in the waste unless in-waste thermocouples are out of service. Temperatures below are the highest temperatures recorded in these tanks during this month.

Temperatures in Degrees F.

HYDROGEN (FLAMMABLE GAS)					
Single-Shell Tanks			Double-Shell Tanks		
Tank No.	Temp.	Officially Added to Watch List	Tank No.	Temp.	Officially Added to Watch List
A-101	143	1/91	AN-103	104	1/91
AX-101	128	1/91	AN-104	105	1/91
AX-103	108	1/91	AN-105	101	1/91
S-102	99	1/91	AW-101	99	6/93
S-111	89	1/91	SY-103	95	1/91
S-112	84	1/91	5 DSTs		
SX-101	134	1/91			
SX-102	140	1/91			
SX-103	155	1/91			
SX-104	138	1/91			
SX-105	167	1/91			
SX-106	98	1/91			
SX-109 (1)	134	1/91		19 Single-Shell Tanks	
T-110	63	1/91		5 Double-Shell Tanks	
U-103	87	1/91		24 Tanks on Watch List	
U-105	88	1/91			
U-107	78	12/93			
U-108	87	1/92			
U-109	85	1/91			
19 SSTs					

All tanks were removed from the Ferrocyanide Watch List and 18 tanks from the Organics Watch List.
Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999.
The remaining two tanks (C-102 and C-103) were removed from the Organics Watch List in August 2000.
DST SY-101 was removed from the Hydrogen Watch list on January 11, 2001.

TABLE D-1. TEMPERATURE MONITORING IN WATCH LIST TANKS
(sheet 2 of 2)

Notes:

Unreviewed Safety Question (USQ):
When a USQ is declared, special controls are required, and work in the tanks is limited. There are currently no USQs on any tanks. **Double-shell tank SY-101 was removed from the Hydrogen Watch List on January 11, 2001.**

Hydrogen/Flammable Gas:
These tanks are suspected of having a significant potential for hydrogen/flammable gas generation, entrapment, and episodic release. The USQ associated with these tanks was closed in September 1998. Twenty-four tanks (19 SST and 5 DST) remain on the Hydrogen Watch List.

Organic Salts:
These tanks contain concentrations of organic salts ≥3 weight% of total organic carbon (TOC)(equivalent to 10 wt% sodium acetate). The USQ associated with these tanks was closed in October 1998, and 18 organic complexant tanks were removed from the Organic Watch List in December 1998. The remaining two organic salts tank (C-102 and C-103) were removed from the Organic Watch List in August 2000.

High Heat:
These tanks contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling. There are currently nine tanks on the High Heat Load List but no tanks on the High Heat Load Watch List.

Active ventilation:
There are 15 single-shell tanks on active ventilation (seven are on the Watch List as indicated by an asterisk):

C-105	SX-107
C-106 (2)	SX-108
SX-101 *	SX-109 * (1)
SX-102 *	SX-110
SX-103 *	SX-111
SX-104 *	SX-112
SX-105 *	SX-114
SX-106 *	

Footnotes:

(1) Tank SX-109 is on the Hydrogen Watch List as it has the potential for flammable gas accumulation only because other SX tanks vent through it.

(2) Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999.

(3) Tanks C-102 and C-103 were removed from the Organics Salts Watch List on August 23, 2000.

(4) Double-shell tank SY-101 was removed from the Hydrogen Watch List on January 11, 2001.

TABLE D-2. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS

January 31, 2001

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>26,000 Btu/hr)

Nine tanks have high heat loads for which temperature surveillance requirements are established by HNF-SD-WM-TSR-006, Rev 1, *Tank Waste Remediation System Technical Safety Requirements,* December 1999. In an analysis, WHC-SD-WM-SARR-010, Rev 1, *Heat Removal Characteristics of Waste Storage Tanks,* Kummerer, 1995, it was estimated that nine tanks have heat sources >26,000 Btu/hr, which is the new parameter for determining high heat load tanks. See also document HNF-SD-WM-BIO-001, Rev 1, *Tank Waste Remediation System Basis for Interim Operation,* Noorani, 1998.

Temperatures in these tanks did not exceed TSR requirements for this month, and are monitored by the Tank Monitor and Control System (TMACS), unless indicated otherwise. All high heat load tanks are on active ventilation.

Tank No.	Temperature (F.)	
C-106 (1)	57	(Riser #8)
SX-103	155	
SX-107	163	
SX-108	180	
SX-109 (2)	134	
SX-110	162	
SX-111	182	
SX-112	146	
SX-114	174	
9 Tanks		

Notes:

(1) C-106 was removed from the High Heat Load Watch List on December 16, 1999. The final thermal analysis report, RPP-6463, Rev. 0, "Thermal Analysis for Tanks 241-AY-102 and C-106," was issued August 9, 2000. The report concluded that the best estimate heat load for C-106 is between 7,000 and 11,000 Btu/hr. Although it no longer meets the criteria for a high heat load tank, it will take an AB change to revise the temperature control limits and monitoring frequency. The AB Amendment request is pending review by ORP.

(2) SX-109 is on the Hydrogen Watch List as it has the potential for flammable gas accumulation only because the other SX tanks vent through it.

SINGLE-SHELL TANKS WITH LOW HEAT LOADS (<26,000 Btu/hr)

There are 114 low heat load non-watch list tanks. Temperatures in tanks connected to TMACS are monitored by TMACS; temperatures in those tanks not yet connected to TMACS are manually taken semiannually in January and July. Temperatures obtained semiannually have been within historical ranges for the applicable tank.

No temperatures have been obtained for several years in the tanks listed below. Most of these tanks have no thermocouple tree.

Tank No.	Tank No.
BX-104	TX-101
BY-102	TX-110
BY-109	TX-114
C-204	TX-116
SX-115	TX-117
T-102	U-104
T-105	

TABLE D-3. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR

January 31, 2001

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table A-1).

	Ferrocyanide	Hydrogen	Organics	High Heat	Total Tanks SST	Total Tanks DST	Total Tanks Total
1/91 Original List -Response to Public Law 101-5	23	23	8	1	47	5	52
Added 2/91 (revision to Original List)	1 T-107				1		1
Total - December 31, 1991	24	23	8	1	48	5	53
Added 8/92		1 AW-101				1	1
Total - December 31, 1992	24	24	8	1	48	6	54
Added 3/93			1 U-111		1		
Deleted 7/93	-4 (BX-110) (BX-111) (BY-101) (T-101)				-4		
Added 12/93		1 (U-107)			0		
Total - December 31, 1993	20	25	9	1	45	6	51
Added 2/94			1 T-111		1		
Added 5/94			10 A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		4		
Deleted 11/94	-2 (BX-102) (BX-106)				-2		
Total - December 31, 1995	18	25	20	1	48	6	54
Deleted 6/96	-4 (C-108) (C-109) (C-111) (C-112)				-4		
Deleted 9/96	-14 (BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)				-12		
Deleted 12/98			-18 (A-101) (AX-102) (B-103) (S-102) (S-111) (SX-103) (SX-106) (T-111) (TX-105) (TX-118) (TY-104) (U-103) (U-105) (U-106) (U-107) (U-111) (U-203) (U-204)		-10		
Total - December 31, 1998	0	25	2	1	22	6	28
Deleted 12/99				-1 (C-106)	-1		
Deleted 08/00			-1 (C-102)		-1		
			-1 (C-103)		-1		
Deleted 01/01		-1 (SY-101)				-1	
Total - January 31, 2001	0	24	0	0	19	4	24

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 6)

January 31, 2001

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:
All Watch List and High Heat tank temperature monitoring is in compliance. (4)
All Dome Elevation Survey monitoring is in compliance
All Psychrometrics monitoring is in compliance (2).
Drywell monitoring no longer required (5).
In-tank photos/videos are taken "as needed"

LEGEND:

(Shaded)	= in compliance with all applicable documentation
N/C	= noncompliance with applicable documentation
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe
POP	= Plant Operating Procedure, TO-040-650
MT/FIC/ ENRAF	= Surface level measurement devices
OSD	= Operating Spec. Doc., OST-T-151-00013, 00030, 00031
N/A	= Not applicable (not monitored, or no monitoring schedule)
None	= Applicable equipment not installed
FSAR/TSR	= Final Safety Analysis Report/Technical Safety Requirements

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
A-101	X			LOW	None	None		
A-102				None	None		None	None
A-103				LOW	None	None		
A-104				None	None	None		None
A-105				None		None	None	None
A-106				None	None	None		None
AX-101	X			LOW	None	None		(9)
AX-102				None	None	None		None
AX-103	X			None	None	None		None
AX-104				None	None	None		None
B-101				None	None	None		None
B-102				ENRAF	None	None		None
B-103				None	None	None		O/S
B-104				LOW	None	None		
B-105				LOW	None	None		
B-106				ENRAF	None	None		None
B-107				None	None	None		None
B-108				None	None	None		None
B-109				None	None	None		None
B-110				LOW	None	None		O/S (12)
B-111				LOW	None	None		
B-112				ENRAF	None	None		None
B-201				ENRAF	None	None		None
B-202				ENRAF	None	None		None
B-203				ENRAF	None	None		None
B-204				ENRAF	None	None		None
BX-101				ENRAF	None	None		None
BX-102				None	None	None		None
BX-103				ENRAF	None	None		None
BX-104			None	ENRAF	None	None		None
BX-105				None	None	None		None
BX-106				ENRAF	None	None		None
BX-107				ENRAF	None	None		None

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 2 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
BX-108				None	None	None		None
BX-109				None	None	None		None
BX-110				None	None	None		None
BX-111				LOW	None	None		
BX-112				ENRAF	None	None		None
BY-101				LOW		None	None	
BY-102			None	LOW	None	None		
BY-103				LOW	None	None		
BY-104				LOW		None	None	
BY-105				LOW		None	None	
BY-106				LOW		None	None	
BY-107				LOW		None	None	
BY-108				None		None	None	None
BY-109			None	LOW	None	O/S	None	
BY-110				LOW	None	None		
BY-111				LOW	None	None		
BY-112				LOW		None	None	
C-101				None		None	None	None
C-102 (10)				None	None		None	None
C-103 (10)				ENRAF	None	None		None
C-104				None	None	None		None
C-105				None	None	None		None
C-106 (3)		X		ENRAF	None	None		None
C-107				ENRAF	None	None		None
C-108				None		None	None	None
C-109				None		None	None	None
C-110				MT		None	None	None
C-111				None		None	None	None
C-112				None	None	None		None
C-201				None		None	None	None
C-202				None		None	None	None
C-203				None		None	None	None
C-204			None	None		None	None	None
S-101				ENRAF	None	None		
S-102	X			LOW	None	None		
S-103				ENRAF	None	None		
S-104				LOW	None	None		
S-105				LOW	None	None		
S-106				LOW	None	None		
S-107				ENRAF	None	None		None
S-108				LOW	None	None		
S-109				LOW	None	None		
S-110				LOW	None	None		
S-111	X			ENRAF	None	None		
S-112	X			LOW	None	None		
SX-101	X			LOW	None	None		
SX-102	X			LOW	None	None		
SX-103	X	X		LOW	None	None		
SX-104	X			LOW	None	None		
SX-105	X			LOW	None	None		O/S (11)
SX-106	X			LOW	None	None		
SX-107		X		None	None	None		None
SX-108		X		None	None	None		None

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 3 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
SX-109	X	X		None	None	None		None
SX-110		X		None	None	None		None
SX-111		X		None	None	None		None
SX-112		X		None	None	None		None
SX-113				None	None	None		None
SX-114		X		None	None	None		None
SX-115			None	None	None	None		None
T-101				None	None	None		None
T-102			None	ENRAF	None	None		None
T-103				None	None	None		None
T-104				LOW	None	None		
T-105			None	None	None	None		None
T-106				None	None	None		None
T-107				ENRAF	None	None		None
T-108				ENRAF	None	None		None
T-109				None	None	None		None
T-110	X			LOW	None	None		
T-111				LOW	None	None		
T-112				ENRAF	None	None		None
T-201				MT		None	None	None
T-202				MT		None	None	None
T-203				None		None	None	None
T-204				MT		None	None	None
TX-101			None	ENRAF	None	None		None
TX-102				LOW	None	None		
TX-103				None	None	None		None
TX-104				None	None	None		None
TX-105				None	None	None		None (8)
TX-106				LOW	None	None		
TX-107				None	None	None		None
TX-108				None	None	None		None
TX-109				LOW	None	None		
TX-110			None	LOW	None	None		
TX-111				LOW	None	None		
TX-112				LOW	None	None		
TX-113				LOW	None	None		
TX-114			None	LOW	None	None		
TX-115				LOW	None	None		
TX-116			None	None	None	None		None
TX-117			None	LOW	None	None		
TX-118				LOW	None	None		
TY-101				None	None	None		None
TY-102				ENRAF	None	None		None
TY-103				LOW	None	None		
TY-104				ENRAF	None	None		None
TY-105				None	None	None		None
TY-106				None	None	None		None
U-101				MT		None	None	None
U-102				LOW	None	None		
U-103	X			LOW	None	None		
U-104			None	None		None	None	None
U-105	X			LOW	None	None		
U-106				LOW	None	None		

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 4 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
U-107	X			ENRAF	None	None		
U-108	X			LOW	None	None		
U-109	X			LOW	None	None		
U-110				None	None	None		None
U-111				LOW	None	None		
U-112				None		None	None	None
U-201				MT		None	None	None
U-202				MT		None	None	None
U-203				None	None	None		None
U-204				ENRAF	None	None		None
Catch Tanks and Special Surveillance Facilities								
A-302-A	N/A	N/A	N/A	(6)	None	None		None
A-302-B	N/A	N/A	N/A	(6)		None	None	None
ER-311	N/A	N/A	N/A	(6)	None	None		None
AX-152	N/A	N/A	N/A	(6)		None	None	None
AZ-151	N/A	N/A	N/A	(6)	None		ENRAF	None
AZ-154	N/A	N/A	N/A	(6)		None	None	None
BX-TK/SMP	N/A	N/A	N/A	(6)		None	None	None
A-244 TK/SMP	N/A	N/A	N/A	(6)	None	None	None	None
AR-204	N/A	N/A	N/A	(6)	None	None	None	None
A-417	N/A	N/A	N/A	(6)	None	None	None	None
A-350	N/A	N/A	N/A	(6)	None	None	None	None
CR-003	N/A	N/A	N/A	(6)	None	None	None	None
Vent Sta.	N/A	N/A	N/A	(6)		None	None	None
244-S TK/SMP	N/A	N/A	N/A	(6)	None	None	None	None
S-302	N/A	N/A	N/A	(6)	None	None		None
S-304	N/A	N/A	N/A	(6)	None	None		None
TX-244 TK/SMP	N/A	N/A	N/A	(6)		None	None	None
TX-302-B	N/A	N/A	N/A	(6)		None	None	None
TX-302-C	N/A	N/A	N/A	(6)	None	None		None
U-301-B	N/A	N/A	N/A	(6)	None	None		None
UX-302-A	N/A	N/A	N/A	(6)	None	None		None
S-141	N/A	N/A	N/A	(6)	O/S	None	None	None
S-142	N/A	N/A	N/A	(6)	O/S	None	None	None
Totals: 149 tanks	19 Hydrogen Watch List Tanks	9 High Heat Tanks (non-Watch List)	N/C: 0		N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS -149 TANKS
(Sheet 5 of 6)

Footnotes:

1. All SSTs have either manual tape, FIC, or ENRAF surface level measuring devices. Some also have zip cords.

   ENRAF gauges are being installed to replace FICs (or sometimes manual tapes). The ENRAF gauges are being connected to TMACS, but many are currently being read manually from the field. See Table D-6 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks. Psychrometric readings are taken on an "as needed" basis with the exception of tanks C-105 and C-106. Document OSD-T-151-00013 requires psychrometric readings to be taken in C-105 and C-106 on a monthly frequency when the ventilation system is running. Psychrometric readings were not taken in C-105/106 in May 2000. Discrepancy Report 00-880 was issued August 3, 2000, stating a work package was not prepared due to an oversight during personnel transition. Notification to DOE-RL to discontinue psychrometric data collection in C-105/C-106 was submitted in July 1998; this was not responded to by DOE; therefore the discontinuance of psychrometrics was not incorporated into OSD-T-151-00013. Since the issuance of the Discrepancy Report, an additional request has been made to DOE; as soon as a response is received, the requirement to take psychrometrics will be deleted from the OSD. The Environmental Protection Agency does not require that psychrometrics be taken.

   Psychrometric readings previously taken monthly in SX-farm will now be taken annually.

3. Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999.

4. Temperature readings may be regulated by OSD, POP, or FSAR (FSAR only regulates high heat load tanks). Temperatures cannot be obtained in 13 low heat load tanks (see Table D-2). The OSD does not require readings or repair of out-of-service thermocouples for the low heat load (≤26,000 Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

   Temperatures in some tanks cannot be taken in the waste because the waste level is lower than the lowest thermocouple in these trees.

   Temperatures for many tanks are monitored continuously by TMACS; see Table D-7, TMACS Monitoring Status.

5. Document OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," REV D-2, December 7, 2000, requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection until an LOW is installed. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

   This OSD revision does not require drywell surveys to be taken: drywell scans will only be taken by special request, since any scans would have to be subcontracted. The contractor no longer has drywell scanning equipment.

6. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 6 of 6)

Catch tank 240-S-302 is monitored for intrusions only, and is not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

Weight Factor is the surface level measuring device currently used in A-417, A-350, 244-A Tank/Sump, and 244-S Tank/Sump. DCRT CR-003 is inactive and measured in gallons. 204-AR is also measured in gallons.

7. Document SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet, which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

   Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-203	T-109
AX-102	BX-106	C-204	TX-107
AX-104	BX-108	SX-110	TY-102
B-102	C-108	SX-113	TY-104
B-103	C-109	SX-115	TY-106
B-112	C-111	T-102	U-101
		T-103	U-112

   Total - 34 Tanks

8. Tank TX-105 - the LOW was in riser 8; the riser has been removed and the LOW has not been monitored since January 1987. Liquid levels are being taken in riser 9 by ENRAF and recorded in TMACS.

9. Tank AX-101 - LOW readings are taken by gamma sensors.

10. Tanks C-102 and C-103 were removed from the Organics Salts Watch List on August 23, 2000

11. Tank SX-105 - LOW scan not taken for week ending August 28, 2000. LOW is primary leak detection device; ENRAF is backup and monitored daily in TMACS. LOW has failed structurally, and will be replaced. Work Package 2H0005040. **Fabrication shop is having procurement problems; completion date has been delayed. (Tank is currently being saltwell pumped).**

12. Tank B-110 - LOW scan not taken for week ending October 9, 2000. LOW is primary leak detection device; no stated backup, so device must be repaired in 14 days or an alternative device used to obtain a valid reading before an OSD violation occurs. **Discrepancy Report 00-884 (Rev 2) issued December 12, 2000**. The LOW is being grouted per 2W-00-01303 so that readings can be obtained. Work Package 2H0105391will replace LOW well at a later date. The grouting and decontamination attempts done November and December 2000 were unsuccessful; LOW well will be replaced. **Deadline to install well is now February 7, 2001.**

TABLE D-5. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS

28 TANKS (Sheet 1 of 2)

January 31, 2001

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month.

NOTE:

Dome Elevation Surveys are not required for DSTs.

Psychrometrics and in-tank photos/videos are taken "as needed" (2)

LEGEND:	
(Shaded)	= In compliance with all applicable documentation
N/C	= Noncompliance with applicable documentation
FIC/ENRAF M.T.	= Surface level measurement devices
OSD	= OSD-T-151-0007, OSD-T-151-00031
None	= no M.T., FIC or ENRAF installed
O/S	= Out of Service
W.F.	= Weight Factor
N/A	= Not Applicable (not monitored or no monitoring schedule)
Rad.	= Radiation

Tank Number	Watch List	Temperature Readings (3) (OSD)	Surface Level Readings (1) (OSD)			Radiation Readings: Leak Detection Pits (4) (OSD)		Radiation Readings: Annulus (OSD)
			M.T.	FIC	ENRAF	W.F.	Rad. (6)	
AN-101				None			N/A	
AN-102				None			N/A	
AN-103	X			None			N/A	
AN-104	X		O/S	None			N/A	
AN-105	X		O/S	None			N/A	
AN-106				None			N/A	
AN-107				None		O/S	N/A	
AP-101			O/S	None		O/S (7)	N/A	
AP-102				None		O/S (7)	N/A	
AP-103				None		O/S (7)	N/A	
AP-104			O/S	None		O/S (7)	N/A	
AP-105				None		O/S (7)	N/A	
AP-106				None		O/S (7)	N/A	
AP-107				None		O/S (7)	N/A	
AP-108				None		O/S (7)	N/A	
AW-101	X		O/S	None			N/A	
AW-102					(5)		N/A	
AW-103				None			N/A	
AW-104				None			N/A	
AW-105				None			N/A	
AW-106				None			N/A	
AY-101				None		O/S	N/A	O/S
AY-102				None			N/A	
AZ-101				None			N/A	O/S
AZ-102					None		N/A	O/S
SY-101	(10)		None	None		O/S (9)	N/A	
SY-102				None			N/A	
SY-103	X		O/S (8)	None		O/S (9)	N/A	
Totals: 28 tanks	5 Watch List Tanks	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE D-5. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 28 TANKS
(Sheet 2 of 2)

Footnotes:

1. Some double-shell tanks have both FIC and manual tape which is used when the FIC is out of service. Noncompliance (N/C) will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs. The ENRAF gauges are being connected to TMACS, but some are currently being read manually.

2. Psychrometric readings are taken on an "as needed" basis. No psychrometric readings are currently being taken in the double-shell tanks.

3. OSD specifies double-shell tank temperature limits, gradients, etc.

4. Applicable OSD and HNF-IP-0842, latest revisions, are used as guidelines for monitoring Leak Detection Pits. See also (6) and (7) below.

5. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.

6. USQ TF-97-0038, dated April 28, 1997, specifies discontinuing the use of leak detection pit radiation monitoring equipment in all double-shell tank farms where the leak detection pits are used as tertiary leak detection. This applies to all double-shell tank farms.

7. Leak Detection Pit weekly readings are being obtained by Instrument Technicians in these tanks:
   AP-103C (for tanks AP-101 - 104)
   AP-105C (for tanks AP-105 - 108)

8. SY-103 - Manual Tape has sporadic readings. ENRAF is primary device.

9. SY-101 - LDP readings are above normal range. EDL #S0007 to repair it.
   SY-103 - LDP readings are above normal range. EDL #241-SY-95-5 to repair it.

10. **SY-101 - was removed from the Hydrogen Watch List on January 11, 2001.**

TABLE D-6. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND DATA INPUT METHODS

January 31, 2001

LEGEND

SACS = Surveillance Analysis Computer System
TMACS = Tank Monitor and Control System
Auto = Automatically entered into TMACS and electronically transmitted to SACS
Manual = Manually entered directly into SACS by surveillance personnel, from Field Data sheets

EAST AREA

Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Auto	B-201	07/00	Auto
A-102			B-202	07/00	Auto
A-103	07/96	Auto	B-203	06/00	Auto
A-104	05/96	Manual	B-204	06/00	Auto
A-105			BX-101	04/96	Auto
A-106	01/96	Auto	BX-102	06/96	Auto
AN-101	08/96	Auto	BX-103	04/96	Auto
AN-102	05/00	Auto	BX-104	05/96	Auto
AN-103	08/95	Auto	BX-105	03/96	Auto
AN-104	08/95	Auto	BX-106	07/94	Auto
AN-105	08/95	Auto	BX-107	06/96	Auto
AN-106	05/00	Auto	BX-108	05/96	Auto
AN-107	04/00	Auto	BX-109	08/95	Auto
AP-101	06/99	Auto	BX-110	06/96	Auto
AP-102	08/99	Auto	BX-111	05/96	Auto
AP-103	08/99	Auto	BX-112	03/96	Auto
AP-104	07/99	Auto	BY-101		
AP-105	08/99	Auto	BY-102	09/99	Auto
AP-106	08/99	Auto	BY-103	12/96	Auto
AP-107	08/99	Auto	BY-104		
AP-108	08/99	Auto	BY-105		
AW-101	08/95	Auto	BY-106		
AW-102	05/96	Auto	BY-107		
AW-103	05/96	Auto	BY-108		
AW-104	01/96	Auto	BY-109		
AW-105	06/96	Auto	BY-110	02/97	Manual
AW-106	06/96	Auto	BY-111	02/99	Manual
AX-101	09/95	Auto	BY-112		
AX-102	09/98	Auto	C-101		
AX-103	09/95	Auto	C-102		
AX-104	10/96	Auto	C-103	08/94	Auto
AY-101	03/96	Auto	C-104	04/99	Manual
AY-102	01/98	Auto	C-105	05/96	Manual
AZ-101	08/96	Manual	C-106	02/96	Auto
AZ-102			C-107	04/95	Auto
B-101	07/00	Auto	C-108		
B-102	02/95	Auto	C-109		
B-103	07/00	Auto	C-110		
B-104	06/00	Auto	C-111		
B-105	08/00	Auto	C-112	03/96	Manual
B-106	07/00	Auto	C-201		
B-107	06/00	Auto	C-202		
B-108	07/00	Auto	C-203		
B-109	08/00	Auto	C-204		
B-110	07/00	Auto			
B-111	07/00	Auto			
B-112	03/95	Auto			

Total East Area: 70

WEST AREA

Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
S-101	02/95	Auto	TX-101	11/95	Auto
S-102	05/95	Auto	TX-102	05/96	Auto
S-103	05/94	Auto	TX-103	12/95	Auto
S-104	05/99	Auto	TX-104	03/96	Auto
S-105	07/95	Auto	TX-105	04/96	Auto
S-106	06/94	Auto	TX-106	04/96	Auto
S-107	06/94	Auto	TX-107	04/96	Auto
S-108	07/95	Auto	TX-108	04/96	Auto
S-109	08/95	Auto	TX-109	11/95	Auto
S-110	08/95	Auto	TX-110	05/96	Auto
S-111	08/94	Auto	TX-111	05/96	Auto
S-112	05/95	Auto	TX-112	05/96	Auto
SX-101	04/95	Auto	TX-113	05/96	Auto
SX-102	04/95	Auto	TX-114	05/96	Auto
SX-103	04/95	Auto	TX-115	05/96	Auto
SX-104	05/95	Auto	TX-116	05/96	Auto
SX-105	05/95	Auto	TX-117	06/96	Auto
SX-106	08/94	Auto	TX-118	03/96	Auto
SX-107	09/99	Auto	TY-101	07/95	Auto
SX-108	09/99	Auto	TY-102	09/95	Auto
SX-109	09/98	Auto	TY-103	09/95	Auto
SX-110	09/99	Auto	TY-104	06/95	Auto
SX-111	09/99	Auto	TY-105	12/95	Auto
SX-112	09/99	Auto	TY-106	12/95	Auto
SX-113	09/99	Auto	U-101		
SX-114	09/99	Auto	U-102	01/96	Manual
SX-115	09/99	Manual	U-103	07/94	Auto
SY-101	07/94	Auto	U-104		
SY-102	06/94	Auto	U-105	07/94	Auto
SY-103	07/94	Auto	U-106	08/94	Auto
T-101	05/95	Manual	U-107	08/94	Auto
T-102	06/94	Auto	U-108	05/95	Auto
T-103	07/95	Manual	U-109	07/94	Auto
T-104	12/95	Manual	U-110	01/96	Manual
T-105	07/95	Manual	U-111	01/96	Manual
T-106	07/95	Manual	U-112		
T-107	06/94	Auto	U-201		
T-108	10/95	Manual	U-202		
T-109	09/94	Manual	U-203	09/98	Manual
T-110	05/95	Auto	U-204	06/98	Manual
T-111	07/95	Manual			
T-112	09/95	Manual			
T-201					
T-202					
T-203					
T-204					

Total West Area: 77

147 ENRAFs installed: 125 automatically entered into TMACS, 22 manually entered into SACS

TABLE D-7. TANK MONITOR AND CONTROL SYSTEM (TMACS)

January 31, 2001

Note: Indicated below are the number of tanks having at least one operating sensor monitored by TMACS.

Some tanks have more than one sensor: multiple sensors of the same type in a tank are not shown in the table (for example: 10 tanks in BY-Farm have at least one operating TC sensor and 3 tanks in BY-Farm have at least one operating RTD sensor).

Acceptance Testing Completed: Sensors Automatically Monitored by TMACS

EAST AREA Tank Farm	Temperatures Thermocouple Tree (TC)	Temperatures Resistance Thermal Device (RTD)	ENRAF Level Gauge	Pressure (b)	Hydrogen (c)	Gas Sample Flow
A-Farm (6 Tanks)	1		3		1	1
AN-Farm (7 Tanks)	7		7	7	3	3
AP-Farm (8 Tanks)			8			
AW-Farm (6 Tanks)	6		6		1	1
AX-Farm (4 Tanks)	3		4		1	
AY-Farm (2 Tanks)			2			
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)	1		16			
BX-Farm (12 Tanks)	11		12			
BY-Farm (12 Tanks)	10	3	2			
C-Farm (16 Tanks)	15 (f)	1	3	1		
TOTAL EAST AREA (91 Tanks)	54	4	63	8	6	5
WEST AREA						
S-Farm (12 Tanks)	12		12	1	3	1 (e)
SX-Farm (15 Tanks)	14		14	1	7	5 (e)
SY-Farm (3 Tanks) (a)	3		3	1	2	2
T-Farm (16 Tanks)	14	1	3 (d)		1	(e)
TX-Farm (18 Tanks)	13		18			
TY-Farm (6 Tanks)	6	3	6			
U-Farm (16 Tanks)	15		6	4	6	6
TOTAL WEST AREA (86 Tanks)	77	4	62	7	19	19
TOTALS (177 Tanks)	131	8	125	15	25	24

(a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors, and 2 ENRAFs.
(b) Each tank has two sensors (high and low range).
(c) Each tank has two sensors (high and low range).
(d) T-107 - Auto ENRAF O/S, manual readings taken daily
(e) S, SX, and T-Farms - five gas sample flow sensors have been unhooked or removed. Will eventually use SHMS equipment on other tanks but none scheduled yet.
(f) C-105 acromag needs replacing. Manual readings are taken weekly.

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APPENDIX E

MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

TABLE E-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

January 31, 2001

FACILITY	LOCATION	PURPOSE (receives waste from:)	(Gallons)	MONITORED BY	REMARKS
EAST AREA					
241-A-302-A	A Farm	A-151 DB	677	SACS/ENRAF/Manually	Pumped to AW-105 7/00
241-ER-311	B Plant	ER-151, ER-152 DB	8530	SACS/ENRAF/Manually	
241-AX-152	AX Farm	AX-152 DB	583	SACS/MT	August 2000 water added to perform integrity test
241-AZ-151	AZ Farm	AZ-702 condensate	7870	SACS/ENRAF/TMACS	Volume changes daily - pumped to AZ-101 or AZ-102 as needed
241-AZ-154	AZ Farm		25	SACS/MT	
244-BX-TK/SMP	BX Complex	DCRT - Receives from several farms	18390	SACS/MT	Using Manual Tape for tank/sump, pumped 10/16/99 to 66.0 in.
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	6494	MCS/SACS/WTF	WTF- pumped 3/99 to AP-108
A-350	A Farm	Collects drainage	255	MCS/SACS/WTF	WTF (uncorrected) pumped as needed
AR-204	AY Farm	Tanker trucks from various facilities	225	(a) DIP TUBE	Alarms on SACS-pumped to AP-108, 7/00
A-417	A Farm		12344	SACS/WTF	WTF (uncorrected) pumped 4/98
CR-003-TK/SUMP	C Farm	DCRT	3007	MT/ZIP CORD	Zip cord in sump O/S 3/11/96, water intrusion, 1/98
WEST AREA					
241-TX-302-C	TX Farm	TX-154 DB	155	SACS/ENRAF/Manually	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	8038	SACS/ENRAF/Manually	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	3058	SACS/ENRAF/Manually	
241-S-304	S Farm	S-151 DB	130	SACS/ENRAF/Manually	Replaced S-302-A, 10/91; ENRAF installed 7/98 Sump not alarming.
244-S-TK/SMP	S Farm	From original tanks to SY-102	13256	SACS/Manually	WTF (uncorrected)
244-TX-TK/SMP	TX Farm	From original tanks to SY-102	11387	SACS/Manually	MT - pumped PFP 241-Z tank D-5 to 244-TX DCRT on 11/22/00, level now 56.50"
Vent Station Catch Tank		Cross Country Transfer Line	366	SACS/Manually	MT

Total Active Facilities 18

(a) AR-204 was pumped down to 150 gal then valve was left on and 350 gal of water went back into tank.

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- FIC - Food Instrument Corporation measurement device
- MT - Manual Tape
- Zip Cord - surface level measurement device
- WTF - Weight Time Factor - can be recorded as WTF, CWF (corrected), and Uncorrected WTF
- SACS - Surveillance Automated Control System
- MCS - Monitor and Control System
- Manually - Not connected to any automated system
- O/S - Out of Service
- ENRAF - Surface Level Measuring Device

TABLE E-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

January 31, 2001

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5759	SACS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990, Rain intrusion
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	650	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

Total East Area Inactive facilities 18

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- MT - Manual Tape
- SACS - Surveillance Automated Control System
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- NM - Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

TABLE E-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

January 31, 2001

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
240-S-302	S Farm	240-S-151 DB	8385	SACS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB	0		Assumed Leaker TF-EFS-90-042
	Partially filled with grout 2/91, determined still assumed leaker after leak test. Manual FIC readings are unobtainable due to dry grouted surface. CASS monitoring system retired 2/23/99; intrusion readings discontinued. S-304 replaced S-302-A				
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1600	SACS/MT	New MT installed 7/16/93
241-TX-302-B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
361-T-TANK	T Plant	Drainage from T-Plant	Unknown	NM	Isolated 1985 (1)
361-U-TANK	U Plant	Drainage from U-Plant	Unknown	NM	Interim Stabilzed, MT removed 1984 (1)

Total West Area inactive facilities 27

LEGEND:
- DB - Diversion Box, TB - Transfer Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- FIC - Surface Level Monitoring Device
- MT - Manual Tape
- O/S - Out of Service
- SACS - Surveillance Automated Control System
- NM - Not Monitored
- ENRAF - Surface Level Monitoring Device

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

APPENDIX F

LEAK VOLUME ESTIMATES

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 5)

January 31, 2001

Tank Number	Date Declared Confirmed or Assumed Leaker (3)	Volume Gallons (2)	Associated KiloCuries 137 cs (10)	Interim Stabilized Date (11)	Leak Estimate Updated	Leak Estimate Reference
241-A-103	1987	5500 (8)		06/88	1987	(j)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a)(q)
241-A-105 (1)	1963	10000 to 277000	85 to 760 (b)	07/79	1991	(b)(c)
241-AX-102	1988	3000 (8)		09/88	1989	(h)
241-AX-104	1977	-- (6)		08/81	1989	(g)
241-B-101	1974	-- (6)		03/81	1989	(g)
241-B-103	1978	-- (6)		02/85	1989	(g)
241-B-105	1978	-- (6)		12/84	1989	(g)
241-B-107	1980	8000 (8)		03/85	1986	(d)(f)
241-B-110	1981	10000 (8)		03/85	1986	(d)
241-B-111	1978	-- (6)		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200 (8)		08/81	1984	(e)(f)
241-B-203	1983	300 (8)		06/84	1986	(d)
241-B-204	1984	400 (8)		06/84	1989	(g)
241-BX-101	1972	-- (6)		09/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	07/79	1986	(d)
241-BX-110	1976	-- (6)		08/85	1989	(g)
241-BX-111	1984 (13)	-- (6)		03/95	1993	(g)
241-BY-103	1973	<5000		11/97	1983	(a)
241-BY-105	1984	-- (6)		N/A	1989	(g)
241-BY-106	1984	-- (6)		N/A	1989	(g)
241-BY-107	1984	15100 (8)		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000 (8)(10)		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1968	5500 (8)		03/84	1989	(g)
241-C-201 (4)	1988	550		03/82	1987	(i)
241-C-202 (4)	1988	450		08/81	1987	(i)
241-C-203	1984	400 (8)		03/82	1986	(d)
241-C-204 (4)	1988	350		09/82	1987	(i)
241-S-104	1968	24000 (8)		12/84	1989	(g)
241-SX-104	1988	6000 (8)		04/00	1988	(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108 (5)(14)	1962	2400 to 35000	17 to 140 (m)(q)(t)	08/79	1991	(m)(q)(t)
241-SX-109 (5)(14)	1965	<10000	<40 (n)(t)	05/81	1992	(n)(t)
241-SX-110	1976	5500 (8)		08/79	1989	(g)
241-SX-111 (14)	1974	500 to 2000	0.6 to 2.4 (l)(q)(t)	07/79	1986	(d)(q)(t)
241-SX-112 (14)	1969	30000	40 (l)(t)	07/79	1986	(d)(t)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	-- (6)		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500 (8)		04/93	1992	(p)
241-T-103	1974	<1000 (8)		11/83	1989	(g)
241-T-106	1973	115000 (8)	40 (l)	08/81	1986	(d)
241-T-107	1984	-- (6)		05/96	1989	(g)
241-T-108	1974	<1000 (8)		11/78	1980	(f)
241-T-109	1974	<1000 (8)		12/84	1989	(g)
241-T-111	1979, 1994 (12)	<1000 (8)		02/95	1994	(f)(r)
241-TX-105	1977	-- (6)		04/83	1989	(g)
241-TX-107 (5)	1984	2500		10/79	1986	(d)
241-TX-110	1977	-- (6)		04/83	1989	(g)
241-TX-113	1974	-- (6)		04/83	1989	(g)
241-TX-114	1974	-- (6)		04/83	1989	(g)
241-TX-115	1977	-- (6)		09/83	1989	(g)
241-TX-116	1977	-- (6)		04/83	1989	(g)
241-TX-117	1977	-- (6)		03/83	1989	(g)
241-TY-101	1973	<1000 (8)		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	02/83	1986	(d)
241-TY-104	1981	1400 (8)		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	02/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
241-U-110	1975	5000 to 8100 (8)	0.05 (q)	12/84	1986	(d)(q)
241-U-112	1980	8500 (8)		09/79	1986	(d)
67 Tanks		<750,000 - 1,050,000 (7)				

N/A = not applicable (not yet interim stabilized)

TABLE F-1. SINGLE-SHELL LEAK VOLUME ESTIMATES
(Sheet 2 of 6)

Footnotes:

(1) Current estimates [see reference(b)] are that 610 Kgallons of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with Dangerous Waste Regulations [Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington], any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated in accordance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgallons to 277 Kgallons) is based on the following (see References):

1. Reference (b) contains an estimate of 5 Kgallons to 15 Kgallons for the initial leak prior to August 1968.

2. Reference (b) contains an estimate of 5 Kgallons to 30 Kgallons for the leak while the tank was being sluiced from August 1968 to November 1970.

3. Reference (b) contains an estimate of 610 Kgallons of cooling water added to the tank from November 1970 to December 1978 but it was estimated that the leakage was small during this period. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.

4. Reference (c) contains an estimate the 378 to 410 Kgallons evaporated out of the tank from November 1970 to December 1978. Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgallons of cooling water leakage from November 1970 to December 1978.

	Low Estimate	High Estimate
Prior to August 1968	5,000	15,000
August 1968 to November 1970	5,000	30,000
November 1970 to December 1978	0	232,000
Totals	10,000	277,000

(2) These leak volume estimates do not include (with some exceptions), such things as: (a) cooling/raw water leaks, (b) intrusions (rain infiltration) and subsequent leaks, (c) leaks inside the tank farm but not through the tank liner (surface leaks, pipeline leaks, leaks at the joint for the overflow or fill lines, etc.), and (d) leaks from catch tanks, diversion boxes, encasements, etc.

(3) In many cases, a leak was suspected long before it was identified or confirmed. For example, reference (d) shows that Tank 241-U-104 was suspected of leaking in 1956. The leak was "confirmed" in 1961. This report lists the "assumed leaker" date of 1961. Using present standards, Tank 241-U-104 would have been declared an assumed leaker in 1956. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline" and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked. It is highly likely that there have been undetected leaks from single-shell tanks because of the nature of their design and instrumentation.

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 3 of 6)

(4) The leak volume estimate date for these tanks is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.

(5) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicating continuing leak or movement of existing radionuclides in the soil. There is no conclusive way to confirm these observations.

(6) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (9). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgallons (rounded to the nearest Kgallons), for an average of approximately 8 Kgallons for each of 19 tanks.

(7) The total has been rounded to the nearest 50 Kgallons. Upper bound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.

(8) Leak volume estimate is based solely on observed liquid level decreases in these tanks. This is considered to be the most accurate method for estimating leak volumes.

(9) The curie content shown is as listed in the reference document and is not decayed to a consistent date: therefore, a cumulative total is inappropriate.

(10) Tank 241-C-101 experienced a liquid level decrease in the late 1960s and was taken out of service and pumped to a "minimum heel" in December 1969. In 1970, the tank was classified as a "questionable integrity" tank. Liquid level data show decreases in level throughout the 1970s and the tank was saltwell pumped during the 1970s, ending in April 1979. The tank was reclassified as a "confirmed leaker" in January 1980. See references (q) and (r); refer to reference (s) for information on the potential for there to have been leaks from other C-farm tanks (specifically, C-102, C-103, and C-109).

(11) These dates indicate when the tanks were declared to be interim stabilized. In some cases, the official interim stabilization documents were issued at a later date. Also, in some cases, the field work associated with interim stabilization was completed at an earlier date.

(12) Tank T-111 was declared an assumed re-leaker on February 28, 1994, due to a decreasing trend in surface level measurement. This tank was pumped, and interim stabilization completed on February 22, 1995.

(13) Tank BX-111 was declared an assumed re-leaker in April 1993. Preparations for pumping were delayed, following an administrative hold placed on all tank farm operations in August 1993. Pumping resumed and the tank was declared interim stabilized on March 15, 1995.

(14) The leak volume and curie release estimates on SX-108, SX-109, SX-111, and SX-112 have been re-evaluated using a Historical Leak Model [see reference (t)]. In general, the model estimates are much higher than the values listed in the table, both for volume and curies released. The values listed in the table do not reflect this revised estimate because, "In particular, it is worth emphasizing that this report was never meant to be a definitive update for the leak baseline at the Hanford Site. It was rather meant to be an attempt to view the issue of leak inventories with a new and different methodology." (This quote is from the first page of the referenced report).

(15) In July 1998, the Washington State Department of Ecology (Ecology) directed the U. S. Department of Energy (DOE) to develop corrective action plans for eight single-shell tank farms (B/BX/BY/S/SX/T/TX/TY) where groundwater contamination likely originated from tank farm operations. A Tri-Party Agreement milestone (M-45 series) was developed that established a formalized approach for evaluating impacts on groundwater quality of losses of tank wastes to the vadose zone underlying these tank farms. Planning documents have been

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 4 of 6)

completed for the S, SX, B, BX, and BY tank farms and will be completed shortly for the T, TX, and TY farms. The phase 1 field investigation is near completion in the S and SX tank farms and has begun in the B, BX, and BY farms. Field work is anticipated in FY-02 for the T, TX, and TY tank farms. The remaining four single-shell tank farms are expected to be included in corrective action plans in the near future.

All of the information included in this appendix is currently under review and significant revisions are anticipated. Recently, major tank farm vadose zone investigation efforts (such as the baseline spectral gamma-ray logging of all drywells in all single-shell tank farms, as well as drilling and sampling in the SX tank farm) were completed. This appendix will be revised as a better understanding of past tank leak events is developed.

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 5 of 6)

References:

(a) Murthy, K.S., et al, June 1983, *Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site, Washington*, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.

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(c) WHC, 1991b, *Tank 241-A-105 Evaporation Estimate 1970 Through 1978*, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.

(d) Smith, D. A., January 1986, *Single-Shell Tank Isolation Safety Analysis Report*, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

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(f) Catlin, R. J., March 1980, *Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford*, Hanford Engineering Development Laboratory, Richland, Washington.

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(i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, *Liquid Level Losses in Tanks 241-C-201, -202 and -204*, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.

(j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, *Tank 103-A Integrity Evaluation*, Westinghouse Hanford Company, Richland, Washington.

(k) Dunford, G. L., July 8, 1988, Internal Memorandum to R. K. Welty, *Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104*, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.

(l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.

(m) WHC, 1992a, *Tank 241-SX-108 Leak Assessment*, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.

(n) WHC, 1992b, *Tank 241-SX-109 Leak Assessment*, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.

(o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 6 of 6)

(p) WHC, 1992d, Occurrence Report, *Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing*, RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.

(q) WHC,1990b, *A History of the 200 Area Tank Farms*, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.

(r) WHC, 1993a, *Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106, WHC-SD-EN-TI-185*, REV OA, Westinghouse Hanford Company, Richland, Washington.

(s) WHC, 1994, Occurrence Report, *Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker*, RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX G

SINGLE-SHELL TANKS INTERIM STABILIZATION, AND CONTROLLED, CLEAN AND STABLE (CCS) STATUS

TABLE G-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 3)

January 31, 2001

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	09/95	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	01/00 (5)	JET
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/95	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/95	AR	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/85	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	05/95	JET	TX-101	SOUND	02/84	AR
B-101	ASMD IKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	08/83	JET
B-103	ASMD IKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD IKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	04/00	JET (6)	TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR(2)	S-108	SOUND	12/96	JET	TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	01/97	JET	TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/95	SN	SX-104	ASMD LKR	04/00	JET (7)	TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	05/00	JET (8)	U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/85	SN	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	09/00	JET (9)
BX-111	ASMD LKR	03/95	JET	SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	04/95	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	11/97	JET	SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/81	AR(2)(3)	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	07/97	JET	T-104	SOUND	11/99 (4)	JET	U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	05/96	JET				

LEGEND:

AR = Administratively interim stabilized
JET = Saltwell jet pumped to remove drainable interstitial liquid
SN = Supernate pumped (Non-Jet pumped)
N/A = Not yet interim stabilized
ASMD LKR = Assumed Leaker

Interim Stabilized Tanks	125
Not Yet Interim Stabilized	24
Total Single-Shell Tanks	149

TABLE G-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 2 of 2)

Footnotes:

(1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.

(2) Although tanks, BX-103, T-102 and T-112 met the interim stabilization administrative procedure at the time they were stabilized, they no longer meet the recently updated administrative procedure. The tanks were re-evaluated in 1996 and memo 9654456, J. H. Wicks to Dr. J. K. McClusky, DOE-RL, dated September 1996, was issued which recommended that no further pumping be performed on these tanks, based on an economic evaluation.

Document RPP-5556, Rev. 0, "Updated Drainable Interstitial Liquid Volume Estimates for 119 Single-Shell Tanks Declared Stabilized," J. G. Field, February 7, 2000, states that five tanks no longer meet the stabilization criteria (BX-103, T-102, and T-112 exceed the supernate criteria, and BY-103 and C-102 exceed the DIL criteria).

An intrusion investigation was completed on tank B-202 in 1996 because of a detected increase in surface level. As a result of this investigation, it was determined that this tank no longer meets the recently updated administrative procedure for 200 series tanks.

(3) Original Interim Stabilization data are missing on four tanks: B-201, T-102, T-112, and T-201.

(4) Tank 241-T-104 was Interim Stabilized on November 19, 1999. In-tank video taken October 7, 1999, shows the surface is clearly sludge-type waste with no saltcake present. No visible water on surface. Waste surface appears level across tank with numerous cracks. There is a minimal collapsed area around the saltwell screen, with no visible bottom.

(5) Tank 241-T-110 was Interim Stabilized on January 5, 2000, due to major equipment failure. An in-tank video taken October 7, 1999 (pumping was discontinued on August 12, 1999), showed the surface of this tank as smooth, brown-tinted sludge with visible cracks.

(6) Tank 241-S-103 was declared Interim Stabilized April 18, 2000. The surface is a rough, black and brown-colored waste with yellow patches of saltcake visible throughout. The surface appears to be damp but not saturated, and shows irregular cracking typically seen with surfaces beginning to dry out. A pool of supernatant liquid (10 feet in diameter, 5 feet deep, 1.0 Kgallons) is visible from video observations.

(7) Tank 241-SX-104 was declared Interim Stabilized April 26, 2000, due to major equipment failure. The surface is a rough, yellowish gray saltcake waste with an irregular surface of visible cracks and shelves that were created as the surface dried out. The waste surface appears to be dry and shows no standing water within the tank.

(8) Tank 241-SX-106 was declared Interim Stabilized May 5, 2000. The surface is a smooth, white-colored saltcake waste. The surface level slopes slightly from the tank sidewall down to a large depression in the center of the tank. A second depression surrounds both saltwell screens and an abandoned LOW. The waste surfaces appear dry and show no standing water within the tank.

(9) Tank 241-U-103 was declared Interim Stabilized September 11, 2000. The surface is a brown colored waste with irregular patches of white salt crystal. Approximately 30% of the waste surface is covered by the salt formations. The surface level slopes slightly from the tank sidewall down to the first of two depressions in the center of the tank. The waste surface appears dry and shows signs of drying and cracking due to saltwell pumping. LOW readings indicate an average adjusted ILL of 60.2 inches. There is a small pool of supernatant liquid estimated to be 500 gallons.

TABLE G-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES

January 31, 2001
(sheet 1 of 2)

New *single-shell tank interim stabilization milestones* were negotiated in 1999 and are identified in the "Consent Decree." The Consent Decree was approved on August 16, 1999.

CONSENT DECREE
Attachments A-1 and A-2

Following is the schedule for pumping liquid waste from the remaining twenty-nine (29) single-shell tanks. This schedule is enforceable pursuant to the terms of the Decree except for the "Project Pumping Completion Dates," which are estimates only and not enforceable. (Note: Schedule does not include C-106)

Tank Designation	Projected Pumping Start Date	Actual Pumping Start Date	Projected Pumping Completion Date	Interim Stabilization Date
1. T-104	Already initiated	March 24, 1996	May 30, 1999	November 19, 1999
2. T-110	Already initiated	May 12, 1997	May 30, 1999	January 5, 2000
3. SX-104	Already initiated	September 26, 1997	December 30, 2000	April 26, 2000
4. SX-106	Already initiated	October 6, 1998	December 30, 2000	May 5, 2000
5. S-102	July 31, 1999	March 18, 1999	March 30, 2001	
6. S-106	July 31, 1999	April 16, 1999	March 30, 2001	
7. S-103	July 31, 1999	June 4, 1999	March 30, 2001	April 18, 2000
8. U-103*	June 15, 2000	September 26, 1999	April 15, 2002	September 11, 2000
9. U-105*	June 15, 2000	December 10, 1999	April 15, 2002	
10. U-102*	June 15, 2000	January 20, 2000	April 15, 2002	
11. U-109*	June 15, 2000	March 11, 2000	April 15, 2002	
12. A-101	October 30, 2000	May 6, 2000	September 30, 2003	
13. AX-101	October 30, 2000	July 29, 2000	September 30, 2003	
14. SX-105	March 15, 2001	August 8, 2000	February 28, 2003	
15. SX-103	March 15, 2001	October 26, 2000	February 28, 2003	
16. SX-101	March 15, 2001	November 22, 2000	February 28, 2003	
17. U-106*	March 15, 2001	August 24, 2000	February 28, 2003	
18. BY-106	July 15, 2001		June 30, 2003	
19. BY-105	July 15, 2001		June 30, 2003	
20. U-108	December 30, 2001		August 30, 2003	
21. U-107	December 30, 2001		August 30, 2003	
22. S-111	December 30, 2001		August 30, 2003	
23. SX-102	December 30, 2001		August 30, 2003	
24. U-111	November 30, 2002		September 30, 2003	
25. S-109	November 30, 2002	September 23, 2000	September 30, 2003	
26. S-112	November 30, 2002		September 30, 2003	
27. S-101	November 30, 2002		September 30, 2003	
28. S-107	November 30, 2002		September 30, 2003	
29. C-103	No later than December 30, 2000, DOE will determine whether the organic layer and pumpable liquids will be pumped from this tank together or separately, and will establish a deadline for initiating pumping of this tank. The parties will incorporate the initiation deadline into this schedule as provided in Section VI of the Decree. ORP issued a letter to WDOE on December 22, 2000, meeting the requirements of this milestone.			

* Tanks containing organic complexants.

TABLE G-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES
(sheet 2 of 2)

Completion of Interim Stabilization. DOE will complete interim stabilization of all 29 single-shell tanks listed above by September 30, 2004.

Percentage of Pumpable Liquid Remaining to be Removed:

93% of Total Liquid	9/30/1999 (1)
38% of Organic Complexed Pumpable Liquids	9/30/2000 (2)
5% of Organic Complexed Pumpable Liquids	9/30/2001
18% of Total Liquid	9/30/2002
2% of Total Liquid	9/30/2003

The "percentage of pumpable liquid remaining to be removed" is calculated by dividing the volume of pumpable liquid remaining to be removed from tanks not yet interim stabilized by the sum of the total amount of liquid that has been pumped and the pumpable liquid that remains to be pumped from all tanks.

(1) The Pumpable Liquid Remaining was reduced to 88%, by 9/30/99, exceeding this milestone. Reference LMHC-9957926 R1, D. I. Allen, LHMC RPP to D. C. Bryson, DOE-OPP, dated October 26, 1999

(2) The Complexed Pumpable Liquid Remaining was reduced to 38%, by 9/15/00. Reference CHG-0004752, R. F. Wood, CHG, to J. J. Short, DOE-RPP, dated September 13, 2000.

TABLE G-3. SINGLE-SHELL TANKS STABILIZATION STATUS SUMMARY

January 31, 2001

Partial Interim Isolated (PI)

EAST AREA	
A-101	
A-102	
AX-101	
BY-102	
BY-103	
BY-105	
BY-106	
BY-109	
C-103	
C-105	
C-106	
East Area	11

WEST AREA	
S-101	
S-102	
S-103	
S-106	
S-107	
S-108	
S-109	
S-110	
S-111	
S-112	
SX-101	
SX-102	
SX-103	
SX-104	
SX-105	
SX-106	
T-101	
T-104	
T-107	
T-110	
T-111	
U-102	
U-103	
U-105	
U-106	
U-107	
U-108	
U-109	
U-110	
U-111	
West Area	29
Total	40

Intrusion Prevention Completed (IP)

EAST AREA	
A-103	
A-104	
A-105	
A-106	
AX-102	
AX-103	
AX-104	
B-FARM - 16 tanks	
BX-FARM - 12 tanks	
BY-101	
BY-104	
BY-107	
BY-108	
BY-110	
BY-111	
BY-112	
C-101	
C-102	
C-104	
C-107	
C-108	
C-109	
C-110	
C-111	
C-112	
C-201	
C-202	
C-203	
C-204	
East Area	55

WEST AREA	
S-104	
S-105	
SX-107	
SX-108	
SX-109	
SX-110	
SX-111	
SX-112	
SX-113	
SX-114	
SX-115	
T-102	
T-103	
T-105	
T-106	
T-108	
T-109	
T-112	
T-201	
T-202	
T-203	
T-204	
TX-FARM - 18 tanks	
TY-FARM - 6 tanks	
U-101	
U-104	
U-112	
U-102	
U-202	
U-203	
U-204	
West Area	53
Total	108

Controlled, Clean, and Stable (CCS)

EAST AREA	
BX-FARM - 12 Tanks	
East Area	12

WEST AREA	
TX-FARM - 18 tanks	
TY FARM - 6 tanks	
West Area	24
Total	36

Note: CCS activities have been deferred until funding is available.

Interim Stabilized (IS)

EAST AREA	
A-102	
A-103	
A-104	
A-105	
A-106	
AX-102	
AX-103	
AX-104	
B-FARM - 16 tanks	
BX-FARM - 12 tanks	
BY-101	
BY-102	
BY-103	
BY-104	
BY-107	
BY-108	
BY-109	
BY-110	
BY-111	
BY-112	
C-101	
C-102	
C-104	
C-105	
C-107	
C-108	
C-109	
C-110	
C-111	
C-112	
C-201	
C-202	
C-203	
C-204	
East Area	60

WEST AREA	
S-103	
S-104	
S-105	
S-108	
S-110	
SX-104	
SX-106	
SX-107	
SX-108	
SX-109	
SX-110	
SX-111	
SX-112	
SX-113	
SX-114	
SX-115	
T-Farm - 16 tanks	
TX-FARM - 18 tanks	
TY-FARM - 6 tanks	
U-101	
U-103	
U-104	
U-110	
U-112	
U-201	
U-202	
U-203	
U-204	
West Area	65
Total	125

APPENDIX H

TANKS AND EQUIPMENT CODE AND STATUS DEFINITIONS

TABLE H - 1. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

January 31, 2001

1. TANK STATUS CODES

WASTE TYPE (also see definitions, section 2 below)

AW	Aging Waste (Neutralized Current Acid Waste [NCAW])
CC	Complexant Concentrate Waste
CP	Concentrated Phosphate Waste
DC	Dilute Complexed Waste
DN	Dilute Non-Complexed Waste
DSS	Double-Shell Slurry
DSSF	Double-Shell Slurry Feed
NCPLX	Non-Complexed Waste
PD	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)

TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT	Concentrated Waste Holding Tank
DRCVR	Dilute Receiver Tank
EVFD	Evaporate Feed Tank
SRCVR	Slurry Receiver Tank

2. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

WASTE TYPES

Aging Waste (AW)

High level, first cycle solvent extraction waste from the PUREX plant (NCAW)

Concentrated Complexant (CC)

Concentrated product from the evaporation of dilute complexed waste.

Concentrated Phosphate Waste (CP)

Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

Dilute Complexed Waste (DC)

Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetra-acetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

Dilute Non-Complexed Waste (DN)

Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

Double-Shell Slurry (DSS)

Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

Double-Shell Slurry Feed (DSSF)

Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

Non-complexed (NCPLX)

General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

PUREX Decladding (PD)

PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

Drainable Interstitial Liquid (DIL)

Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4 below)

Supernate

The liquid above the solids or in large liquid pools covered by floating solids in waste storage tanks. (See also Section 4 below)

Ferrocyanide

A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[Fe(CN)_6]^{-4}$.

INTERIM STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow or saltwell screen inflow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

Partially Interim Isolated (PI)

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusuable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

TANK INTEGRITY

Sound

The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.

Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new loss of liquid attributed to a breach of integrity.

TANK INVESTIGATION

Intrusion

A term used to describe the infiltration of liquid into a waste tank.

SURVEILLANCE INSTRUMENTATION

Drywells

Historically, the drywells were monitored with gross logging tools as part of a secondary leak monitoring system. In some cases, neutron-moisture sensors were used to monitor moisture in the soil as a function of well depth, which could be indicative of tank leakage. The routine gross gamma logging data were stored electronically from 1974 through 1994. The routine gross gamma logging program ended in 1994. A program was initiated in 1995 to log each of the available drywells in each tank farm with a spectral gamma logging system. The spectral gamma logging system provides quantitative values for gamma-emitting radionuclides. The baseline spectral gamma logging database is available electronically.

Repeat spectral drywell scans are not part of the established Tank Farm leak detection program, but can be run on request if special needs arise. A select subset of drywells is routinely monitored by the Vadose Zone Characterization Project to assess movement of gamma-emitting radionuclides in the subsurface.

Laterals

Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells can be monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms. There are currently no functioning laterals and no plan to prepare them for use.

Surface Levels

The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Surveillance Analysis Computer System (SACS).

Automatic FIC

An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and until February 1999, the majority of the FICs transmitted readings to the CASS. Since CASS retirement, all FIC gauges are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW)

In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (SY-102 and AW-103 tanks), are used for special, rather than routine, surveillance purposes only.

Thermocouple (TC)

A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete.

These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photographs and Videos

In-tank photographs and videos may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs and videos help determine sludge and liquid levels by visual examination.

TERMS/ACRONYMS

CCS Controlled, Clean and Stable (tank farms)

FSAR Final Safety Analysis Report (replaces BIOS, effective October 18, 1999)
II Interim Isolated

IP Intrusion Prevention Completed

IS Interim Stabilized

MT/FIC/ENRAF Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)

OSD Operating Specifications Document

PI Partial Interim Isolated

SAR Safety Analysis Reports

SHMS Standard Hydrogen Monitoring System

TMACS Tank Monitor and Control System

TPA Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)

USQ Unreviewed Safety Question

Wyden Amendment "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

3. INVENTORY AND STATUS BY TANK – COLUMN VOLUME CALCULATIONS AND DEFINITIONS FOR TABLE A-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Total Waste	Solids volume plus Supernatant liquid. Solids include sludge and saltcake (see definitions below).
Supernate (1)	May be either measured or estimated. Supernate is either the estimated or measured liquid floating on the surface of the waste or under a floating solids crust. In-tank photographs or videos are useful in estimating the liquid volumes; liquid floating on solids and core sample data are useful in estimating large liquid pools under a floating crust.
Drainable Interstitial Liquid (DIL) (1)	This is initially calculated. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using calculated porosity values from past pumping or actual data for each tank. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. The sum of the interstitial liquid contained in saltcake and sludge minus an adjustment for capillary height is the initial volume of drainable interstitial liquid.

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Pumped This Month	Net total gallons of liquid pumped from the tank during the month. If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume.
Total Pumped (1)	Cumulative net total gallons of liquid pumped from 1979 to date.
Drainable Liquid Remaining (DLR) (1)	Supernate plus Drainable Interstitial Liquid. The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate.
Pumpable Liquid Remaining (PLR) (1)	Drainable Liquid Remaining minus unpumpable volume. Not all drainable interstitial liquid is pumpable.
Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs or videos may be used to estimate the volume.
Saltcake	Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs or videos may be used to estimate the saltcake volume.
Solids Volume Update	Indicates the latest update of any change in the solids volume.
Solids Update Source - See Footnote	Indicates the source or basis of the latest solids volume update.
Last In-tank Photo	Date of last in-tank photographs taken.
Last In-tank Video	Date of last in-tank video taken.
See Footnotes for These Changes	Indicates any change made the previous month. A footnote explanation for the change follows the Inventory and Status by Tank Appendix (Table E-6).

(1) As pumping continues, supernate, DIL, DLR, PLR, and total gallons pumped are adjusted accordingly based on actual pump volumes.

APPENDIX I

TANK FARM CONFIGURATION, STATUS AND FACILITIES CHARTS

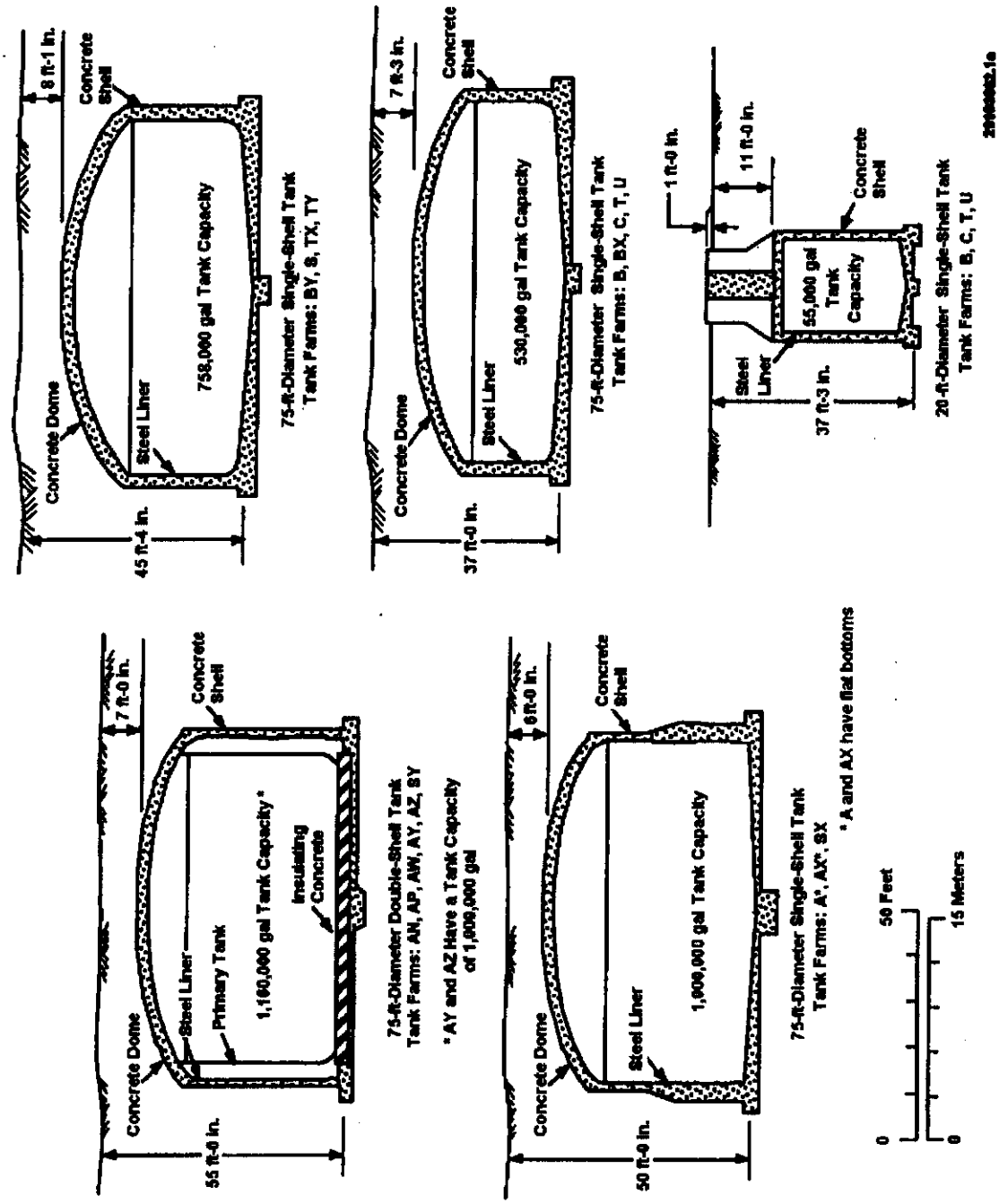

Figure I-1. High-Level Waste Tank Configuration

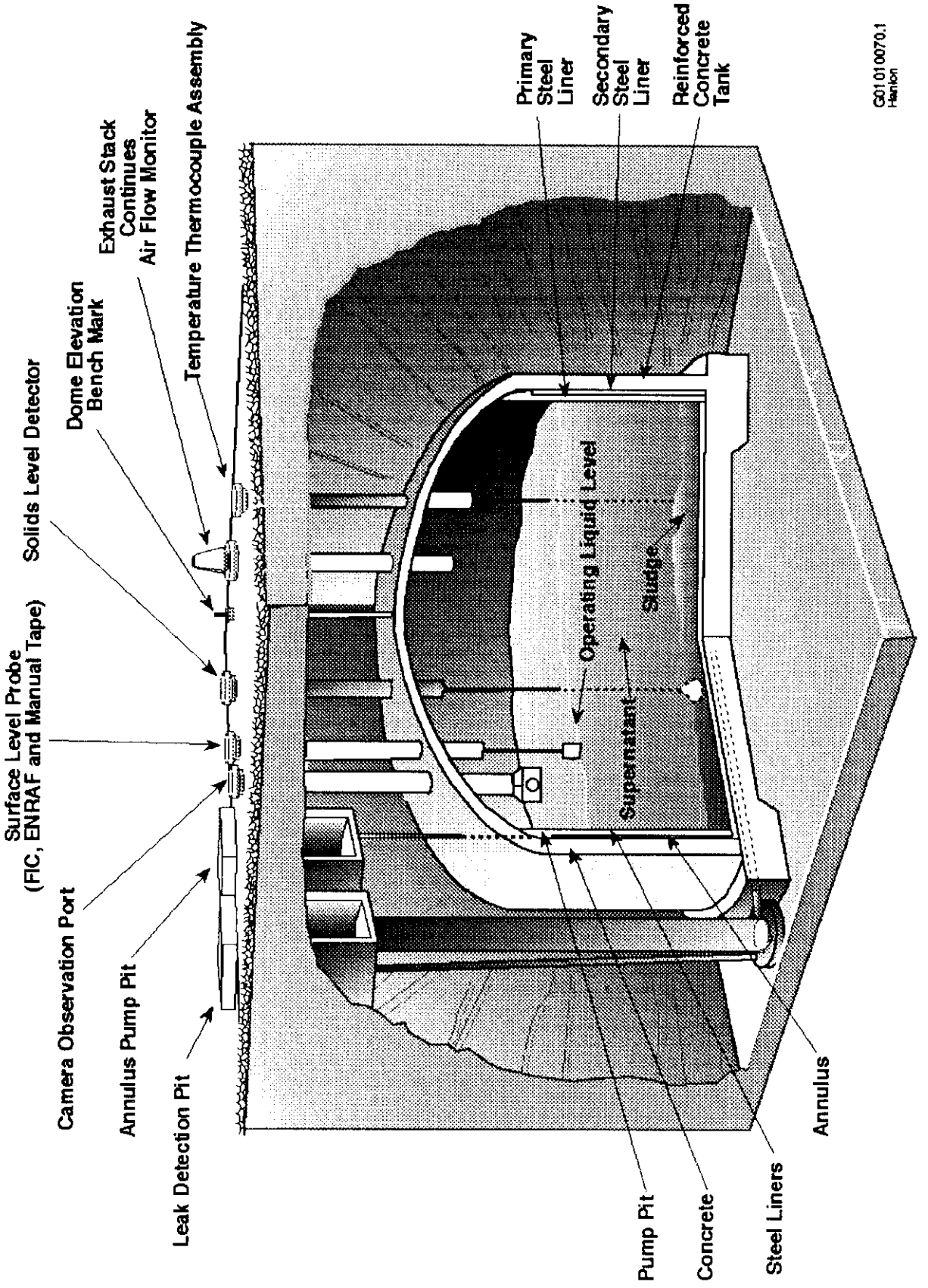

Figure I-2. Double-Shell Tank Instrumentation Configuration

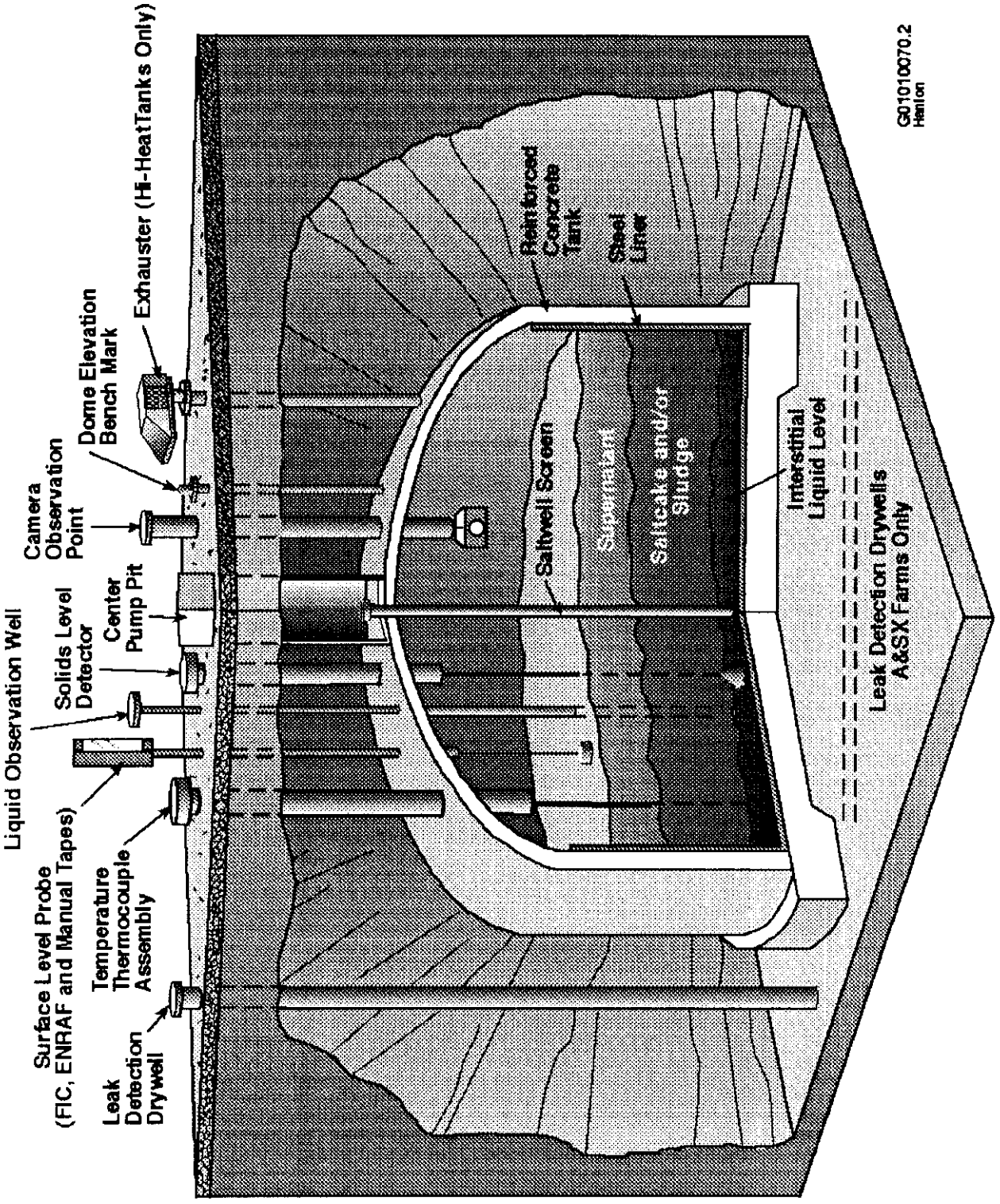

Figure I-3. Single-Shell Tank Instrumentation Configuration

THE TANK FARM FACILITIES CHARTS (colored foldouts)

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