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HNF-EP-0182, Rev. 153

# Waste Tank Summary Report for Month Ending December 31, 2000

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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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S Sta 4. (2)

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# ENGINEERING DATA TRANSMITTAL



1. EDT 631372

| | | |
|---|---|---|
| 2. To: (Receiving Organization) See Distribution Sheet | 3. From: (Originating Organization) Inventory & Flowsheet Engineering | 4. Related EDT No.: na |
| 5. Proj./Prog./Dept./Div.: TFC | 6. Design Authority/Design Agent/Cog. Engr.: John S. Garfield | 7. Purchase Order No.: na |
| 8. Originator Remarks: Electronic File HNF-EP-0182 Initial Release into Hanford Document Control System | | 9. Equip./Component No.: na |
| | | 10. System/Bldg./Facility: na |
| | | 12. Major Assm. Dwg. No.: na |
| 11. Receiver Remarks: This report is the official inventory for radioactive waste stored in underground storage tanks in the 200 Areas at the Hanford Site, for Month Ending December 31, 2000 | 11A. Design Baseline Document? ☐ Yes ☒ No | 13. Permit/Permit Application No.: na |
| | | 14. Required Response Date: na |

15. DATA TRANSMITTED

| (A) Item No. | (B) Document/Drawing No. | (C) Sheet No. | (D) Rev. No. | (E) Title or Description of Data Transmitted | (F) Approval Designator | (G) Reason for Transmittal | (H) Originator Disposition | (I) Receiver Disposition |
|---|---|---|---|---|---|---|---|---|
| 1 | HNF-EP-0182 | | 153 | Waste Tank Report/12-00 | na | 2 | 1 | 6 |

16. KEY

| Approval Designator (F) | Reason for Transmittal (G) | Disposition (H) & (I) |
|---|---|---|
| E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7) | 1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required) | 1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged |

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)

| (G) Reason | (H) Disp. | (J) Name | (K) Signature | (L) Date | (M) MSIN | (G) Reason | (H) Disp. | (J) Name | (K) Signature | (L) Date | (M) MSIN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Design Authority | | | | | | | | | |
| | | Design Agent | | | | | | | | | |
| 1 | 1 | Cog. Eng. | BM Hanlon | 1/23/01 | R3-72 | | | | | | |
| 1 | 1 | Cog. Mgr. | John S Garfield | 1/23/0 | R3-73 | | | | | | |
| | | QA | | | | | | | | | |
| | | Safety | | | | | | | | | |
| | | Env. | | | | | | | | | |

| 18. | 19. | 20. | 21. DOE APPROVAL (if required) |
|---|---|---|---|
| BM Hanlon 1/23/01 Signature of EDT Originator / Date | Authorized Representative for Receiving Organization / Date | John Garfield 1-23-01 Design Authority/ Cognizant Manager / Date | Ctrl No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments |

BD-7400-172-2 (10/97)

BD-7400-172-1

HNF-EP-0182, Rev.153

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CH2M HILL Hanford Group, Inc.

Date Published
January 2001

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

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U.S. Department of Energy Contract DE-AC06-99RL14047

EDT/ECN: EDT-631372 UC:
Cost Center: HFCH0321 Charge Code:
B&R Code: Total Pages: 95

Key Words: Tank Invenories, Monthly Report

Abstract: This report is the official inventory for radioactive waste stored in underground tanks in the 200 Area at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integriy are contained within the report.

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Release Approval 1/23/01 Date

DATE: HANFORD RELEASE
STA: 4 ID. 2
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Printed in the United States of America

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## APPROVALS

| | | |
|---|---|---|
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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 December 31, 2000

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<br>82 single-shell | 1986<br>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]<br><br>Total | 19 single-shell<br>6 double-shell<br>25 tanks | 09/00[e]<br>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 (approximately 50,000 gallons) 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 10-3/4 inches. **The level was 9.25 inches on December 31, 2000.**

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 in December 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 in December 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 in December 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 December 31, 2000, waste levels had not yet stabilized.**

Tank 241-S-109 - Pumping began September 23, 2000. **In December 2000, a total of 2.9 Kgallons was pumped; a total of 144.6 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.**

Tank 241-SX-103 - Pumping began October 26, 2000. **In December 2000, a total of 29.0 Kgallons was pumped; a total of 93.5 Kgallons has been pumped from this tank since start of pumping in October 2000. Waste pumping rate has declined from 1.5 GPM to 0.5 GPM.**

Tank 241-SX-105 - Pumping began August 8, 2000. **In December 2000, a total 5.6 Kgallons was pumped; a total of 142.0 Kgallons has been pumped since start of pumping in August 2000.**

Tank 241-U-102 - Pumping began January 20, 2000. **In December 2000, a total of 5.1 Kgallons was pumped; a total of 71.4 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 December 31, 2000, 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

Tank 241-SY-101 exhibited gas release events due to generation and retention of flammable gas. A mixer pump was installed in the tank in July 1993, which circulated liquid wastes. This prevents gas bubbles from building up at the bottom, and results in venting of small steady gas releases. Since early 1997, the surface level has been rising in spite of regular mixer pump operations.

Resolution Status: On February 11, 1998, the PRC recommended that the DOE-RL declare an Unreviewed Safety Question (USQ) over the continued level growth observed in this tank. The contractor has established a multi-disciplinary team to solve the level growth issues in SY-101.

Final calculated transfer and dilution volumes for level growth remediation can be found in Memo 74B50-00-030, dated March 23, 2000.

The mixer pump is currently in "Standby Mode." The DOE-RL approved the closing of the USQ on November 30, 2000. **It is expected that the official approval to close the flammable gas safety issue and remove this tank from the Hydrogen Watch List will be received in January 2001. It is further anticipated that the documentation for the implementation of the AB change to discontinue use of the mixer pump will be completed by February 15, 2001. Later, this tank will be restored to normal service to provide another operational storage tank.**

3. RL-PMHC-TANKFARM-1999-0023, Occurrence Report, "Additional Information Regarding Crust Growth in 241-SY-101," Off-Normal Occurrence, Latest Update: **December 28, 2000**. (also see #2 above)

On December 18, 1999, approximately 90,000 gallons of nuclear waste was transferred from tank SY-101 to SY-102 in the first of three planned transfers.

In conjunction with the transfers, water is added to the waste to reduce the concentration of gas generation and gas-retaining chemicals to reduce gas buildup in SY-101 and associated receiving tanks.

The second of the three waste transfers was completed on January 27, 2000.

The third and final phase of transfers was initiated on February 29, and completed March 2, 2000.

On April 3, 2000, a Mixer Pump Observation Period (MPOP) began, which was completed; data is being evaluated.

The mixer pump is in "standby mode."

This report is being extended pending completion and evaluation of tank activities during the MPOP and resolution of the USQ issues. (USQ closed November 30, 2000).

**It is anticipated than an Update or Final report will be submitted no later than January 26, 2001.**

# APPENDIX A

# MONTHLY SUMMARY

# TABLE A-1. MONTHLY SUMMARY
## TANK STATUS
December 31, 2000

| | 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 | 3169 | 1264 | 4433 | 0 | 4433 | 4433 |
| CP | Concentrated phosphate waste | 1089 | 0 | 1089 | 0 | 1089 | 1089 |
| DC | Dilute complexed waste | 1659 | 759 | 2418 | 1 | 2417 | 2418 |
| DN | Dilute non-complexed waste | 1572 | 0 | 1572 | 0 | 1572 | 1572 |
| PD | PUREX/TRUsolids | 318 | 0 | 318 | 0 | 318 | 318 |
| NCPLX | Non-complexed waste | 164 | 149 | 313 | 313 | 0 | 313 |
| DSSF | Double-shell slurry feed | 6034 | 168 | 6202 | 1049 | 5153 | 6202 |
| TOTAL SUPERNATANT | | 15762 | 2340 | 18102 | 1363 | 16739 | 18102 |
| SOLIDS | | | | | | | |
| | Sludge (includes liquids) | 6502 | 5648 | 12150 | 11059 | 1091 | 12150 |
| | Saltcake (includes liquids) | 8106 | 15812 | 23918 | 20710 | 3208 | 23918 |
| TOTAL SOLIDS | | 14608 | 21460 | 36068 | 31769 | 4299 | 36068 |
| TOTAL WASTE | | 30370 | 23800 | 54170 | 33132 | 21038 | 54170 |
| AVAILABLE SPACE IN TANKS | | 9382 | 877 | 10259 | 0 | 10259 | 10259 |
| DRAINABLE INTERSTITIAL LIQUID (2) | | 1425 | 2340 | 3765 | 3465 | (2) | 3465 |
| DRAINABLE LIQUID REMAINING (2) | | 2472 | 2356 | 4828 | 4828 | (2) | 4828 |

(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.

(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

December 31, 2000

| 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).

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

December 31, 2000

| | 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 | 3743 | N/A | N/A | N/A |
| AP | N/A | N/A | N/A | 6281 | N/A | N/A | N/A |
| AW | N/A | N/A | N/A | 2491 | N/A | N/A | N/A |
| AX | 0.0 | 0.0 | 21.3 | 378 | 105 | 483 | 447 |
| AY | N/A | N/A | N/A | 444 | 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 | 15762 | 1425 | 2321 | 1977 |
| WEST | | | | | | | |
| S | 2.9 | 21.1 | 1074.5 | 76 | 621 | 697 | 578 |
| SX | 41.5 | 175.9 | 633.5 | 134 | 352 | 486 | 413 |
| SY | N/A | N/A | N/A | 2023 | 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 | 6.4 | 28.7 | 362.8 | 69 | 499 | 568 | 486 |
| Total | 50.8 | 225.7 | 3552.1 | 2340 | 2040 | 1997 | 1645 |
| TOTAL | 50.8 | 225.7 | 5609.0 | 18102 | 3465 | 4318 | 3622 |

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

December 31, 2000

| | | | SUPERNATANT LIQUID VOLUMES (Kgallo | | | | | | | | | SOLIDS VOLUME | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TANK FARM | TOTAL WASTE | AVAIL SPACE | AW | CC | CP | DC | DN | PD | NCPLX | DSSF | TOTAL | SLUDGE | SALT CAKE | TOTAL |
| EAST | | | | | | | | | | | | | | |
| A | 1479 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 503 | 503 | 574 | 402 | 976 |
| AN | 5491 | 2489 | 0 | 1778 | 0 | 0 | 224 | 0 | 0 | 1741 | 3743 | 0 | 1748 | 1748 |
| AP | 6370 | 2750 | 0 | 1391 | 1089 | 1609 | 32 | 0 | 0 | 2160 | 6281 | 0 | 89 | 89 |
| AW | 3984 | 2856 | 0 | 0 | 0 | 0 | 921 | 318 | 0 | 1252 | 2491 | 571 | 922 | 1493 |
| AX | 826 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 378 | 378 | 26 | 422 | 448 |
| AY | 736 | 1224 | 0 | 0 | 0 | 49 | 395 | 0 | 0 | 0 | 444 | 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 | 30370 | 9282 | 1757 | 3169 | 1089 | 1659 | 1572 | 318 | 164 | 6034 | 15762 | 6502 | 8106 | 14608 |
| WEST | | | | | | | | | | | | | | |
| S | 4929 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 1 | 76 | 1184 | 3669 | 4853 |
| SX | 3760 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 134 | 927 | 2699 | 3626 |
| SY | 2543 | 877 | 0 | 1264 | 0 | 759 | 0 | 0 | 0 | 0 | 2023 | 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 | 3242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 33 | 69 | 537 | 2636 | 3173 |
| Total | 23800 | 877 | 0 | 1264 | 0 | 759 | 0 | 0 | 149 | 168 | 2340 | 5648 | 15812 | 21460 |
| TOTAL | 54170 | 10259 | 1757 | 4433 | 1089 | 2418 | 1572 | 318 | 313 | 6202 | 18102 | 12150 | 23918 | 36068 |

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

December 31, 2000

| 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 | 382.5 | 1052 | 88 | 963 | 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 | 378.5 | 1041 | 99 | 794 | 0 | 0 | 247 | 62 | 06/30/99 | 09/01/88 | | |
| 7 DOUBLE-SHELL TANKS | | | | TOTALS | 5491 | 2489 | 3743 | 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 | 412.7 | 1135 | 5 | 1046 | 0 | 0 | 89 | 22 | 06/30/99 | | 09/27/95 | |
| AP-106 | DC | SOUND | DRCVR | 226.5 | 623 | 517 | 623 | 0 | 0 | 0 | 0 | 10/13/88 | | | |
| AP-107 | DC | SOUND | DRCVR | 358.5 | 986 | 154 | 986 | 0 | 0 | 0 | 0 | 10/13/88 | | | |
| AP-108 | DN | SOUND | DRCVR | 11.6 | 32 | 1108 | 32 | 0 | 0 | 0 | 0 | 10/13/88 | | | |
| 8 DOUBLE-SHELL TANKS | | | | TOTALS | 6370 | 2750 | 6281 | 0 | 0 | 89 | 22 | | | | |
| **AW TANK FARM STATUS** | | | | | | | | | | | | | | | |
| AW-101 | DSSF | SOUND | CWHT | 409.8 | 1127 | 13 | 752 | 0 | 0 | 375 | 94 | 10/31/00 | 03/17/88 | | |
| AW-102 | DN | SOUND | EVFD | 23.3 | 64 | 1076 | 34 | 0 | 0 | 30 | 8 | 06/30/99 | 02/02/83 | | |
| AW-103 | PD | SOUND | DRCVR | 185.1 | 509 | 631 | 146 | 316 | 79 | 47 | 12 | 06/30/99 | | | |
| AW-104 | DN | SOUND | DRCVR | 406.5 | 1118 | 22 | 887 | 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 | 3984 | 2856 | 2491 | 571 | 117 | 922 | 232 | | | | |

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

December 31, 2000

| 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 | 57.1 | 157 | 823 | 49 | 108 | 16 | 0 | 0 | 06/30/99 | 12/28/82 | | |
| AY-102 | DN | SOUND | DRCVR | 210.5 | 579 | 401 | 395 | 184 | 28 | 0 | 0 | 10/31/00 | 04/28/81 | | |
| 2 DOUBLE-SHELL TANKS | | | | TOTALS | 736 | 1224 | 444 | 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 | 301.8 | 830 | 310 | 759 | 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 | 2543 | 877 | 2023 | 71 | 11 | 449 | 113 | | | | |
| GRAND TOTAL | | | | | 21038 | 10259 | 16739 | 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 West | 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

December 31, 2000

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 | 38.5 | 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 | 126 | 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

December 31, 2000

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 | 06/01/95 | 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 | 28 | 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 | 166 | 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 | 12/31/96 | 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 | 07/06/87 | 06/18/97 | | |
| BY-110 | NCPLX | SOUND | IS/IP | 396 | 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

December 31, 2000

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 | 82 | 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 | 60 | 2.9 | 144.6 | 60 | 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 | 621 | 2.9 | 1074.5 | 697 | 578 | 1184 | 3669 | | | | |

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

December 31, 2000

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 | 6.9 | 19.2 | 93 | 80 | 0 | 42[illegible] | 12/31/00 | 03/10/89 | | (l) |
| SX-102 | DSSF | SOUND | /PI | 514 | 134 | 95 | 0.0 | 0.0 | 229 | 216 | 0 | 38[illegible] | 04/30/00 | 01/07/88 | | |
| SX-103 | NCPLX | SOUND | /PI | 541 | 0 | 54 | 29.0 | 93.5 | 54 | 39 | 115 | 426 | 12/31/00 | 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 | 495 | 0 | 11 | 5.6 | 142.0 | 11 | -1 | 65 | 430 | 12/31/00 | 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 | 04/28/92 | 03/31/88 | | |
| 15 SINGLE-SHELL TANKS | | | TOTALS: | 3760 | 134 | 352 | 41.5 | 633.5 | 486 | 413 | 927 | 2699 | | | | |
| | | | | | | | | 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 | 08/31/94 | 06/28/89 | | |
| T-103 | NCPLX | ASMD LKR | IS/IP | 27 | 4 | 3 | 0.0 | 0.0 | 7 | 3 | 23 | 0 | 11/29/93 | 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

December 31, 2000

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 | 06/31/84 | 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

December 31, 2000

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 | 06/22/89 | | |
| 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 | 06/22/89 | | |
| 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 | 06/22/89 | | |
| 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 | 304 | 0 | 32 | 5.1 | 71.4 | 32 | 22 | 43 | 261 | 12/31/00 | 06/06/89 | | (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 | 06/10/89 | | |
| U-105 | NCPLX | SOUND | /PI | 331 | 0 | 37 | 0.0 | 67.5 | 37 | 33 | 32 | 299 | 07/31/00 | 07/07/88 | | (b) |
| U-106 | NCPLX | SOUND | /PI | 187 | 0 | 29 | 0.7 | 39.1 | 29 | 17 | 0 | 187 | 12/31/00 | 07/07/88 | | (l) |
| 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 | 0.6 | 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 | 06/03/89 | | |
| U-201 | NCPLX | SOUND | IS/IP | 5 | 1 | 1 | 0.0 | 0.0 | 2 | 1 | 4 | 0 | 06/15/79 | 06/06/89 | | |
| U-202 | NCPLX | SOUND | IS/IP | 5 | 1 | 1 | 0.0 | 0.0 | 2 | 1 | 4 | 0 | 06/15/79 | 06/06/89 | | |
| U-203 | NCPLX | SOUND | IS/IP | 3 | 1 | 0 | 0.0 | 0.0 | 1 | 1 | 2 | 0 | 06/15/79 | 06/13/89 | | |
| U-204 | NCPLX | SOUND | IS/IP | 3 | 1 | 0 | 0.0 | 0.0 | 1 | 1 | 2 | 0 | 06/15/79 | 06/13/89 | | |
| 16 SINGLE-SHELL TANKS | | | TOTALS: | 3242 | 69 | 499 | 6.4 | 362.8 | 568 | 486 | 537 | 2636 | | | | |
| GRAND TOTAL | | | | 33132 | 1363 | 3465 | 50.8 | 5609.0 | 4828 | 3935 | 11059 | 20710 | | | | |

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

December 31, 2000

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 not been stabilized, as of December 31, 2000.

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 December 31, 2000, 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

December 31, 2000

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.

(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: 303.5 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 31.6 Kgal (*)
Pumped this Month: 5.1 Kgal
Total Pumped: 31.6 Kgal
Drainable Liquid Remaining: 31.6 Kgal
Pumpable Liquid Remaining: 21.6 Kgal
Sludge: 43.0 Kgal
Saltcake: 260.5 Kgal

During December 2000, a total of 5,589 gal of fluid was removed with 520 gal of water added by pump priming/equipment flushes, for a net removal of 5,069 gal of waste.
In addition, 14,13 gal of water were used as dilution and 3,330 gal of water were used for transfer line flushes.
(*) The drainable interstitial volume was incorrectly reported in the October and November 2000 issues (3,000 gal too high). The DIL has been adjusted to reflect the current estimated value.

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

December 31, 2000

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: 495.0 Kgal
Supernate: 0.0 Kgal
Drainable Interstial Liquid: 11.0 Kgal
Pumped this month: 5.6 Kgal
Total Pumped: 142.0 Kgal
Drainable Liquid Remaining: 11.0 Kgal
Pumpable Liquid Remaining: -1.0 Kgal (*)
Sludge: 65.0 Kgal
Saltcake: 430.0 Kgal

In December 2000, a total of 5,862 gal of fluid was removed with 247 gal of water added by pump priming and system flushes, for a net removal of 5,615 gal of waste.
In addition, ,059 gal of dilution water and 764 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. There is an estimated 15,000 gal of PLR and 27,000 gal of DLR.

(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/equipment 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

December 31, 2000

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: 434.8 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.

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

December 31, 2000

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.

Total Waste: 473.4 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 59.8 Kgal
Pumped this Month: 2.9 Kgal
Total Pumped: 144.6 Kgal (includes 111.0 Kgal pumped in 1979)
Drainable Liquid Remaining: 59.8 Kgal
Pumpable Liquid Remaining: 49.4 Kgal
Sludge: 13.0 Kgal
Saltcake: 460.4 Kgal

In December 2000, a total of 3,595 gal of fluid was removed with 716 gal of water added by pump priming/system flushes, for a net removal of 2,879 gal of waste.
In addition, 0 gal of water were used for dilution, and 366 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: 540.5 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 53.5 Kgal
Pumped this month: 29.0 Kgal
Total Pumped: 93.5 Kgal
Drainable Liquid Remaining: 53.5 Kgal
Pumpable Liquid Remaining: 38.5 Kal
Sludge: 115.0 Kgal
Saltcake: 425.5 Kgal

In December 2000, a total of 29,367 gal of fluid was removed with a total of 332 gal of water added by pump priming/equipment flushes, for a net removal of 29,025 gal of waste.
In addition, 29,790 gal of water were used as dilution and 831 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

December 31, 2000

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

**FOOTNOTES:**

(l) 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.

# APPENDIX B

# PERFORMANCE SUMMARY

## TABLE B-1. SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANK (DST) SYSTEM

**December 31, 2000**

All volumes in Kgallons

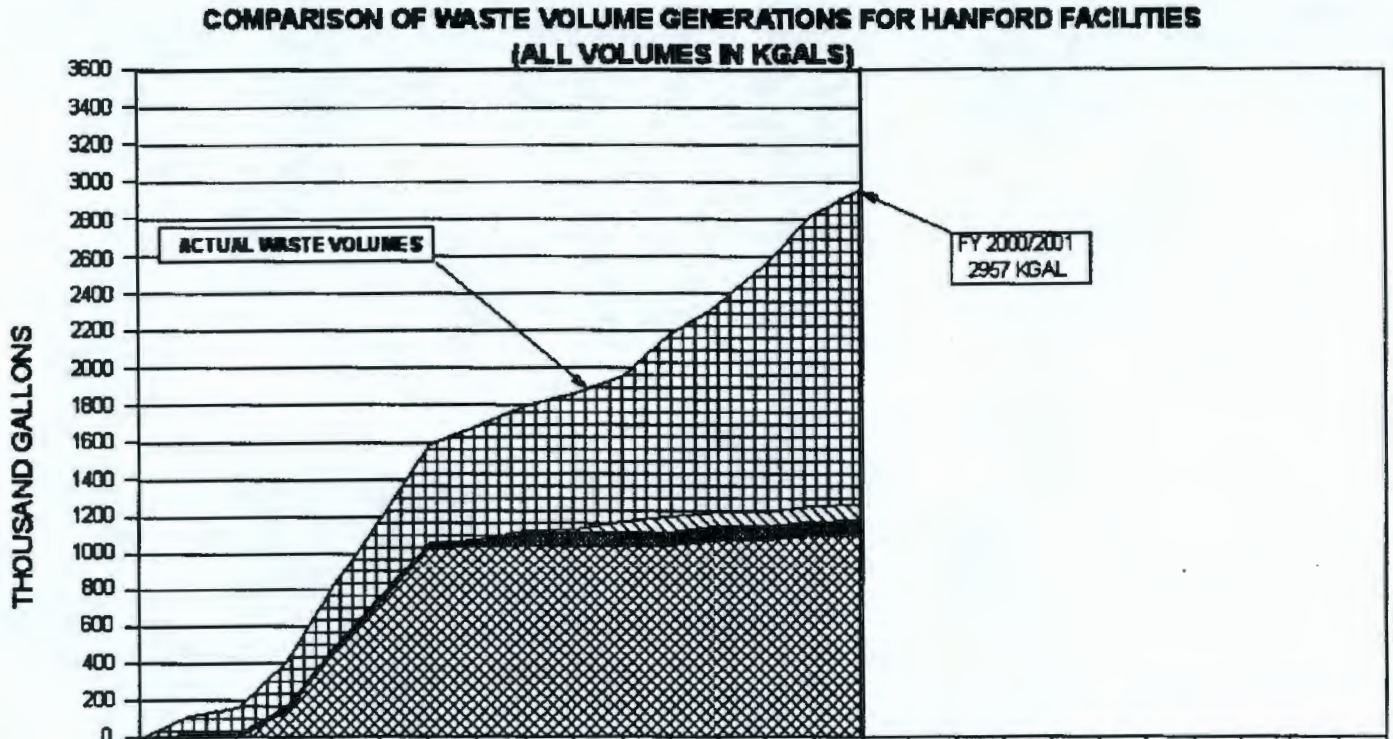
- The DST system received waste additions from SST Stabilization, and catch tanks 151-AZ, & A-350 in December.
- There was a net change of +138,000 gallons in the DST system for December 2000.
- The total DST inventory as of December 31, 2000 was 21.038 million gallons.
- There were 0 Kgals of Saltwell Liquid (SWL) pumped to the East Area DSTs (101-AN) in December.
- There were ~129 Kgals of SWL (52 Kgals SWL & 77 Kgals H2O) pumped to the West Area DSTs (102-SY) in December.
- 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 ~8600 gallons of caustic (NaOH) added to Tank 241-AY-101 in December, ~500 gallons of water was used to flush the waste transfer system after the caustic addition.

| DECEMBER 2000 DST WASTE RECEIPTS | | | | | |
|---|---|---|---|---|---|
| FACILITY GENERATIONS | | OTHER GAINS ASSOCIATED WITH | | OTHER LOSSES ASSOCIATED WITH | |
| SWL (West) | +129 Kgal (2SY) | SLURRY | +1 Kgal | SLURRY | -5 Kgal |
| Caustic (NaOH) | + 9 Kgal (1AY) | CONDENSATE | +7 Kgal | CONDENSATE | -6 Kgal |
| Tank Farms | + 1 Kgal (4AW) | INSTRUMENTATION | +13 Kgal | INSTRUMENTATION | -0 Kgal |
| TOTAL | +139 Kgal | UNKNOWN | +1 Kgal | UNKNOWN | -12 Kgal |
| | | TOTAL= | +22 Kgal | TOTAL= | -23 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 | | 397 | | 0 | | |
| 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 |




| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SWL WEST | 100 | 36 | 96 | 99 | 92 | 108 | 80 | 66 | 54 | 51 | 197 | 132 | 222 | 231 | 129 |
| SWL EAST | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 31 | 27 | 0 | 0 | 0 | 0 |
| 100 AREA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PFP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 106-C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/400 AREA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| S PLANT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| T PLANT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TANK FARMS | 4 | 3 | 6 | 0 | 0 | 0 | 1 | 46 | 8 | 6 | 2 | 1 | 0 | 0 | 1 |
| B PLANT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WESF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER | 0 | 0 | 146 | 312 | 278 | 293 | 15 | 0 | 0 | 0 | 0 | 26 | 0 | 30 | 9 |

NOTE: The Other Category is for Waste Generations from, Evaporator Training, Pressure Tests, Cross-Site Transfers, Caustic Additions and Tank 101-SY remediation work

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

# APPENDIX C

# DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION

# Table C-1. Double-Shell Tank Waste Inventory - December 31, 2000

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

| MONTHLY INVENTORY CHANGE | |
|---|---|
| 11/00 TOTAL | 20900 |
| 12/00 TOTAL | 21038 |
| CHANGE= | 138 |

| 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 | 1062 | 963 | 99 | 99 | 22 | 0 | 0 | 88 |
| 241-AN-103 | DSS | 958 | 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 | 1041 | 794 | 247 | 247 | 62 | 0 | 0 | 99 |
| 241-AP-101 | DSSF | 1114 | 1114 | 0 | 0 | 0 | 0 | 0 | 26 |
| 241-AP-102 | CP | 1069 | 1069 | 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 | 1135 | 1046 | 89 | 89 | 22 | 0 | 0 | 5 |
| 241-AP-106 | DC | 823 | 823 | 0 | 0 | 0 | 0 | 0 | 517 |
| 241-AP-107 | DC | 986 | 986 | 0 | 0 | 0 | 0 | 0 | 154 |
| 241-AP-108 | DN | 32 | 32 | 0 | 0 | 0 | 0 | 0 | 1108 |
| 241-AW-101 | DSSF | 1127 | 752 | 375 | 375 | 94 | 0 | 0 | 13 |
| 241-AW-102 | DN | 64 | 34 | 30 | 30 | 8 | 0 | 0 | 1078 |
| 241-AW-103 | NCRW | 509 | 146 | 363 | 47 | 12 | 316 | 79 | 631 |
| 241-AW-104 | DN | 1118 | 887 | 231 | 231 | 58 | 0 | 0 | 22 |
| 241-AW-105 | NCRW | 427 | 172 | 255 | 0 | 0 | 255 | 34 | 713 |
| 241-AW-106 | DSSF | 739 | 500 | 239 | 239 | 60 | 0 | 0 | 401 |
| 241-AY-101 | DC | 157 | 49 | 108 | 0 | 0 | 108 | 16 | 823 |
| 241-AY-102 | DN | 579 | 395 | 184 | 0 | 0 | 184 | 28 | 401 |
| 241-AZ-101 | NCAW | 917 | 865 | 52 | 0 | 0 | 52 | 8 | 83 |
| 241-AZ-102 | NCAW | 897 | 892 | 105 | 0 | 0 | 105 | 16 | 0 |
| 241-SY-101 | CC | 971 | 888 | 83 | 83 | 21 | 0 | 0 | 169 |
| 241-SY-102 | DC | 830 | 759 | 71 | 0 | 0 | 71 | 11 | 310 |
| 241-SY-103 | CC | 742 | 376 | 366 | 366 | 92 | 0 | 0 | 398 |
| | | 21038 | 16739 | 4299 | 3198 | 807 | 1081 | 195 | 10259 |

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 | |
|---|---|
| 11/00 TANK SPACE | 10398 |
| 12/00 TANK SPACE | 10259 |
| CHANGE= | -139 |

| OPERATIONAL SPACE | |
|---|---|
| AP-108= | 1108 |
| AW-102= | 1078 |
| AW-105= | 713 |
| AW-106= | 401 |
| SY-102= | 310 |
| TOTAL= | 3608 |

| RESTRICTED SPACE | |
|---|---|
| AN-102= | 88 |
| AN-107= | 99 |
| AP-102= | 51 |
| AZ-101= | 83 |
| AZ-102= | 0 |
| TOTAL= | 301 |

| WATCH LIST SPACE | |
|---|---|
| AN-103= | 184 |
| AN-104= | 88 |
| AN-105= | 12 |
| AW-101= | 13 |
| SY-101= | 169 |
| SY-103= | 398 |
| TOTAL= | 864 |

| NON-ALLOCATED SPACE | |
|---|---|
| AN-101= | 916 |
| AN-106= | 1102 |
| AP-101= | 26 |
| AP-103= | 858 |
| AP-104= | 31 |
| AP-105= | 5 |
| AP-108= | 517 |
| AP-107= | 154 |
| AW-103= | 631 |
| AW-104= | 22 |
| AY-101= | 823 |
| AY-102= | 401 |
| TOTAL= | 5486 |
| EMERGENCY SPACE | -1140 |
| LAW or HLW RETURN | -1140 |
| REMAINING SPACE | 3206 |

## Inventory Calculation by Waste Type:

| DILUTE SUPERNATE (DN) | |
|---|---|
| AN-101= | 224 |
| AP-108= | 32 |
| AW-102= | 34 |
| AW-103= | 146 |
| AW-104= | 887 |
| AW-105= | 172 |
| AY-102= | 395 |
| TOTAL DN= | 1890 |
| TOTAL SOLIDS= | 1063 |

| SLURRY SUPERNATE (DSS/DSSF) | |
|---|---|
| AN-103= | 499 |
| AN-104= | 603 |
| AN-105= | 639 |
| AP-101= | 1114 |
| AP-105= | 1046 |
| AW-101= | 752 |
| AW-106= | 500 |
| TOTAL DSS/DSS | 5153 |
| TOTAL SOLIDS= | 2098 |

| COMPLEXED SUPERNATE (DC\CC) | |
|---|---|
| AN-102= | 963 |
| AN-106= | 21 |
| AN-107= | 794 |
| AP-103= | 282 |
| AP-104= | 1109 |
| AP-106= | 823 |
| AP-107= | 986 |
| AY-101= | 49 |
| SY-101= | 888 |
| SY-102= | 759 |
| SY-103= | 376 |
| TOTAL DC/CC= | 8850 |
| TOTAL SOLIDS | 981 |

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

| PHOSPHATE SUPERNATE (CP) | |
|---|---|
| TOTAL CP= | 1069 |

| DST SLUDGE / SALTCAKE LIQUID | | | |
|---|---|---|---|
| AN-102= | 22 | AW-104= | 58 |
| AN-103= | 114 | AW-105= | 38 |
| AN-104= | 112 | AW-106= | 80 |
| 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) = | 4258 |
| SLURRY (DSS/DSSF)= | 5153 |
| CONCENTRATED COMPLEXED (CC)= | 4482 |
| CONCENTRATED PHOSPHATE (CP)= | 1069 |
| AGING SUPERNATE (AW)= | 1757 |
| DST SOLIDS (NO LIQUID)= | 3302 |
| DST SLUDGE / SALTCAKE LIQUID= | 997 |
| TOTAL= | 21038 |

## Table C-2. Double-Shell Tank Waste Inventory - December 31, 2000

| | | | |
|---|---|---|---|
| TOTAL AVAILABLE USABLE AS OF DECEMBER 31, 2000= | | | 10259 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 | 13 KGALS |
| | SY-101 | CC | 169 KGALS |
| | SY-103 | CC | 398 KGALS |
| | | TOTAL= | 864 KGALS |
| | | AVAILABLE TANK SPACE= | 10259 KGALS |
| | | MINUS WATCH LIST SPACE= | -864 KGALS |
| TOTAL AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS= | | | 9395 KGALS |
| **RESTRICTED TANK SPACE:** | **TANK** | **WASTE TYPE** | **AVAILABLE SPACE** |
| *DST Headspace Available to Store Only Specific Waste Types* | | | |
| | AN-102 | CC | 88 KGALS |
| | AN-107 | CC | 99 KGALS |
| | AP-102 | CP | 51 KGALS |
| | AZ-101 | AW | 63 KGALS |
| | AZ-102 | AW | 0 KGALS |
| | | TOTAL= | 301 KGALS |
| AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS= | | | 9395 KGALS |
| | | MINUS RESTRICED SPACE= | -301 KGALS |
| TOTAL AVAILABLE SPACE AFTER RESTRICTED SPACE DEDUCTIONS= | | | 9094 KGALS |
| **OPERATIONAL TANK SPACE** | **TANK** | **WASTE TYPE** | **AVAILABLE SPACE** |
| *DST Headspace Available For Facility Generated* | AP-108 | DN | 1108 KGALS |
| *Waste and 242-A Evaporator Operations* | AW-102 | DN | 1076 KGALS |
| | AW-105 | NCRW | 713 KGALS |
| | AW-106 | DSSF | 401 KGALS |
| | SY-102 | DC | 310 KGALS |
| | | TOTAL= | 3608 KGALS |
| AVAILABLE SPACE AFTER RESTRICTED SPACE DEDUCTIONS= | | | 9094 KGALS |
| | | MINUS OPERATIONAL SPACE= | -3608 KGALS |
| TOTAL AVAILABLE SPACE AFTER OPERATIONAL SPACE DEDUCTIONS= | | | 5486 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 | 5 KGALS |
| | AP-106 | DC | 517 KGALS |
| | AP-107 | DC | 154 KGALS |
| | AW-103 | NCRW | 631 KGALS |
| | AW-104 | DN | 22 KGALS |
| | AY-101 | DC | 823 KGALS |
| | AY-102 | DN | 401 KGALS |
| TOTAL NON-ALLOCATED TANK SPACE= | | | 5486 KGALS |
| EMERGENCY TANK SPACE | | | -1140 KGALS |
| LAW or HLW RETURN SPACE: | | | -1140 KGALS |
| TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS | | | 3206 KGALS |

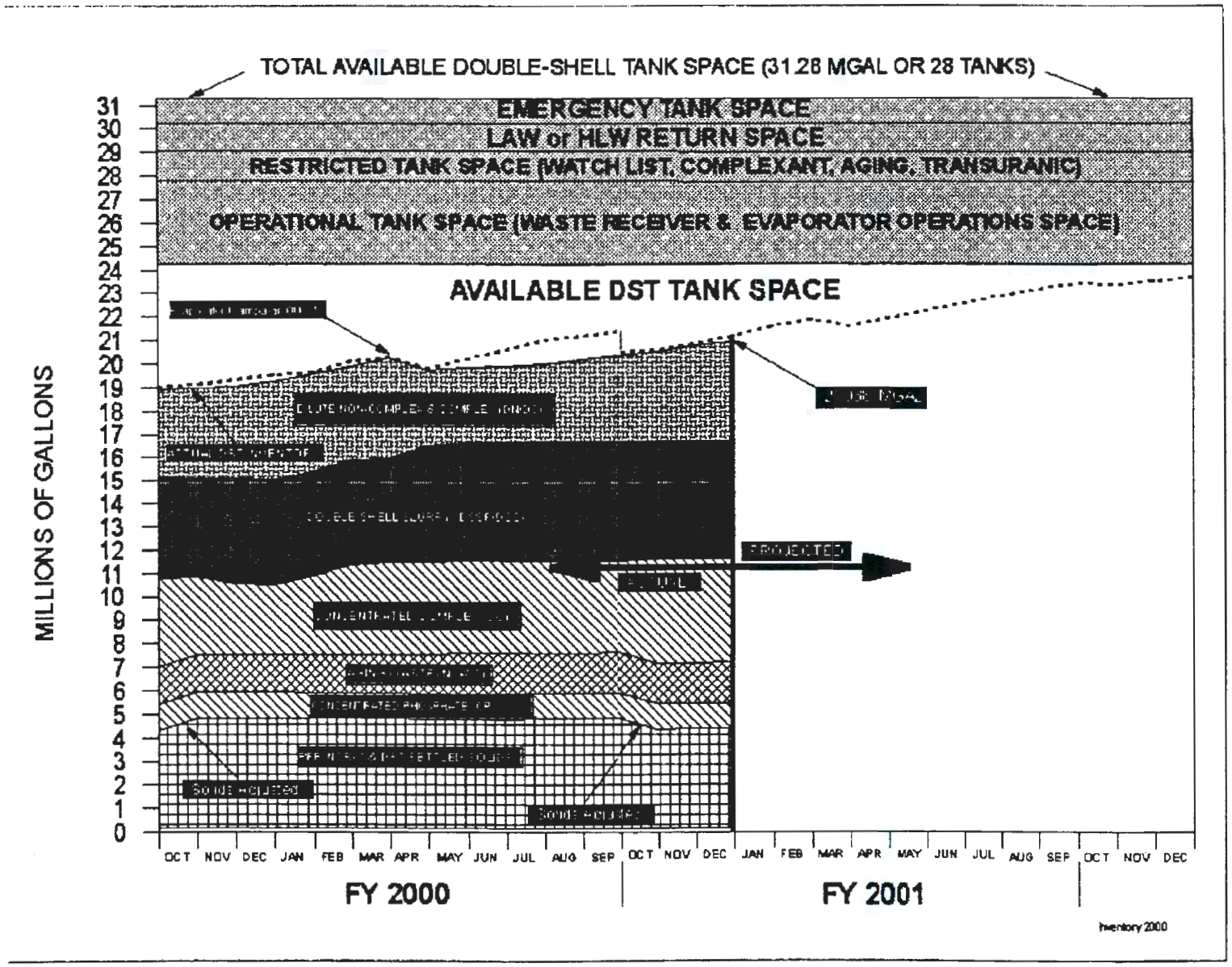



Figure C-1. Total Double-Shell Tank Inventory

# APPENDIX D

# WASTE TANK SURVEILLANCE MONITORING TABLES

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

December 31, 2000

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 | 144 | 1/91 | AN-103 | 105 | 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 | 100 | 6/93 |
| S-111 | 89 | 1/91 | SY-101 | 95 | 1/91 |
| S-112 | 84 | 1/91 | SY-103 | 95 | 1/91 |
| SX-101 | 130 | 1/91 | 6 DSTs | | |
| SX-102 | 140 | 1/91 | | | |
| SX-103 | 157 | 1/91 | | | |
| SX-104 | 138 | 1/91 | | | |
| SX-105 | 161 | 1/91 | | | |
| SX-106 | 99 | 1/91 | | | |
| SX-109 (1) | 135 | 1/91 | | 19 Single-Shell Tanks | |
| T-110 | 64 | 1/91 | | 6 Double-Shell Tanks | |
| U-103 | 88 | 1/91 | | 25 Tanks on Watch List | |
| U-105 | 89 | 1/91 | | | |
| U-107 | 78 | 12/93 | | | |
| U-108 | 86 | 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.

# 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 single-shell tanks. The USQ on double-shell tank SY-101 for liquid level increases was closed on November 30, 2000.

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-five tanks (19 SST and 6 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.

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

December 31, 2000

## 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) | 60 | (Riser #8) |
| SX-103 | 157 | |
| SX-107 | 165 | |
| SX-108 | 182 | |
| SX-109 (2) | 135 | |
| SX-110 | 164 | |
| SX-111 | 184 | |
| SX-112 | 148 | |
| SX-114 | 175 | |
| 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
December 31, 2000

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 101-6 | 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)<br>(BX-111)<br>(BY-101)<br>(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<br>AX-102<br>C-102<br>S-111<br>SX-103<br>TY-104<br>U-103<br>U-105<br>U-203<br>U-204 | | 4 | | |
| Deleted 11/94 | -2 (BX-102)<br>(BX-106) | | | | -2 | | |
| Total - December 31, 1995 | 18 | 25 | 20 | 1 | 48 | 6 | 54 |
| Deleted 6/96 | -4 (C-108)<br>(C-109)<br>(C-111)<br>(C-112) | | | | -4 | | |
| Deleted 9/96 | -14 (BY-103)<br>(BY-104)<br>(BY-105)<br>(BY-106)<br>(BY-107)<br>(BY-108)<br>(BY-110)<br>(BY-111)<br>(BY-112)<br>(T-107)<br>(TX-118)<br>(TY-101)<br>(TY-103)<br>(TY-104) | | | | -12 | | |
| Deleted 12/98 | | | -18 (A-101)<br>(AX-102)<br>(B-103)<br>(S-102)<br>(S-111)<br>(SX-103)<br>(SX-106)<br>(T-111)<br>(TX-105)<br>(TX-118)<br>(TY-104)<br>(U-103)<br>(U-105)<br>(U-106)<br>(U-107)<br>(U-111)<br>(U-203)<br>(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 | | |
| Total - December 31, 2000 | 0 | 25 | 0 | 0 | 19 | 6 | 25 |

Eighteen of the 20 tanks were removed from the Organics Watch List in December 1998; the last two were removed August 2000; eight of the eighteen tanks are still on the Hydrogen Watch List, which is the only remaining Watch List.

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

149 TANKS (Sheet 1 of 6)

December 31, 2000

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 | | (13) |
| 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 (B) |
| 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 | (5) | None | None | | None |
| A-302-B | N/A | N/A | N/A | (5) | | None | None | None |
| ER-311 | N/A | N/A | N/A | (5) | None | None | | None |
| AX-152 | N/A | N/A | N/A | (5) | | None | None | None |
| AZ-151 | N/A | N/A | N/A | (5) | None | | ENRAF | None |
| AZ-154 | N/A | N/A | N/A | (5) | | None | None | None |
| BX-TK/SMP | N/A | N/A | N/A | (5) | | None | None | None |
| A-244 TK/SMP | N/A | N/A | N/A | (5) | None | None | None | None |
| AR-204 | N/A | N/A | N/A | (5) | None | None | None | None |
| A-417 | N/A | N/A | N/A | (5) | None | None | None | None |
| A-350 | N/A | N/A | N/A | (5) | None | None | None | None |
| CR-003 | N/A | N/A | N/A | (5) | None | None | None | None |
| Vent Sta. | N/A | N/A | N/A | (5) | | None | None | None |
| 244-S TK/SMP | N/A | N/A | N/A | (5) | None | None | None | None |
| S-302 | N/A | N/A | N/A | (5) | None | None | | None |
| S-304 | N/A | N/A | N/A | (5) | None | None | | None |
| TX-244 TK/SMP | N/A | N/A | N/A | (5) | | None | None | None |
| TX-302-B | N/A | N/A | N/A | (5) | | None | None | None |
| TX-302-C | N/A | N/A | N/A | (5) | None | None | | None |
| U-301-B | N/A | N/A | N/A | (5) | None | None | | None |
| UX-302-A | N/A | N/A | N/A | (5) | None | None | | None |
| S-141 | N/A | N/A | N/A | (5) | O/S | None | None | None |
| S-142 | N/A | N/A | N/A | (5) | 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 C-0, January 13, 1999, 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 if the tank has been interim stabilized, 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 under extreme conditions; any scans would have to be subcontracted, as the contractor no longer has vans.

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 working on making new well; approximate completion date is January 2001. (Tank is 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 1) issued October 11, 2000. The LOW is being grouted per 2W-00-01303 so that readings can be obtained. Work Package 2H0105391 will replace LOW well at a later date. **The grouting and decontamination attempts done November and December 2000 were unsuccessful; LOW well will be replaced.**

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

28 TANKS (Sheet 1 of 2)

December 31, 2000

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 | X | | None | None | | O/S (9) | N/A | |
| SY-102 | | | O/S (8) | None | | | N/A | |
| SY-103 | X | | O/S (8) | None | | O/S (9) | N/A | |
| Totals: 28 tanks | 6 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.
   SY-102 - Manual Tape has sporadic readings. The plummet fell off the M.T. - a work request was written July 31, 2000. ENRAF is primary device.

9. SY-101 - LDP readings are above normal range. EDL #241-SY-99-2 to repair it.
   SY-103 - LDP readings are above normal range. EDL #241-SY-95-5 to repair it.

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

*December 31, 2000*

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)

December 31, 2000

*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<br>Tank Farm | Temperatures<br>Thermocouple Tree (TC) | Temperatures<br>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.

# 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

December 31, 2000

| FACILITY | LOCATION | PURPOSE (receives waste from:) | (Gallons) | MONITORED BY | REMARKS |
|---|---|---|---|---|---|
| **EAST AREA** | | | | | |
| 241-A-302-A | A Farm | A-151 DB | 678 | SACS/ENRAF/Manually | Pumped to AW-105 7/00 |
| 241-ER-311 | B Plant | ER-151, ER-152 DB | 8474 | SACS/ENRAF/Manually | |
| 241-AX-152 | AX Farm | AX-152 DB | 625 | SACS/MT | August 2000 water added to perform integrity test |
| 241-AZ-151 | AZ Farm | AZ-702 condensate | 2705 | 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 | 18253 | 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 | 6168 | MCS/SACS/WTF | WTF- pumped 3/99 to AP-108 |
| A-350 | A Farm | Collects drainage | 318 | MCS/SACS/WTF | WTF (uncorrected) pumped as needed |
| AR-204 | AY Farm | Tanker trucks from various facilities | 540 | (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 | 156 | SACS/ENRAF/Manually | |
| 241-U-301-B | U Farm | U-151, U-152, U-153, U-252 DB | 8050 | SACS/ENRAF/Manually | Returned to service 12/30/93 |
| 241-UX-302-A | U Plant | UX-154 DB | 3002 | 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 | 361 | 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

December 31, 2000

| 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

December 31, 2000

| 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 | 8412 | 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 Stabilized, 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)

December 31, 2000

| 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.

(b) WHC, 1991a, *Tank 241-A-105 Leak Assessment*, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.

(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.

(e) McCann, D. C., and T. S. Vail, September 1984, *Waste Status Summary*, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.

(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.

(g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, 8901832B R1, Westinghouse Hanford Company, Richland, Washington.

(h) WHC, 1990a, Occurrence Report, *Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102*, WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.

(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.

(t) HNF, 1998, Agnew, S. F. and R. A. Corbin, August 1998, *Analysis of SX Farm Leak Histories - Historical Leak Model*, (HLM), HNF-3233, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico

# 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)

December 31, 2000

| 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

December 31, 2000

(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

December 31, 2000

## 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 50

**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

December 31, 2000

## 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 FACILITY CHARTS

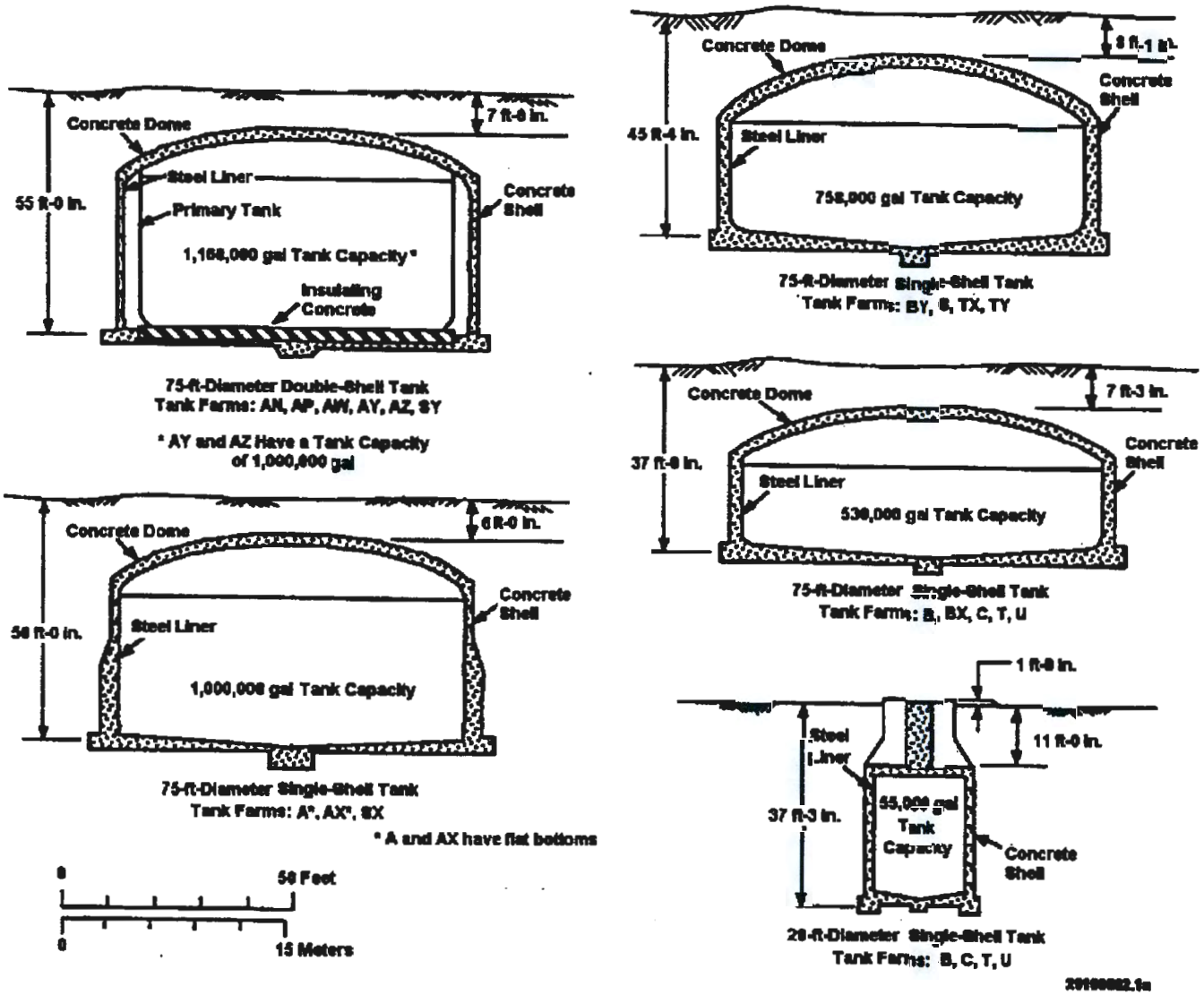



FIGURE I-1. HIGH LEVEL WASTE TANK CONFIGURATION

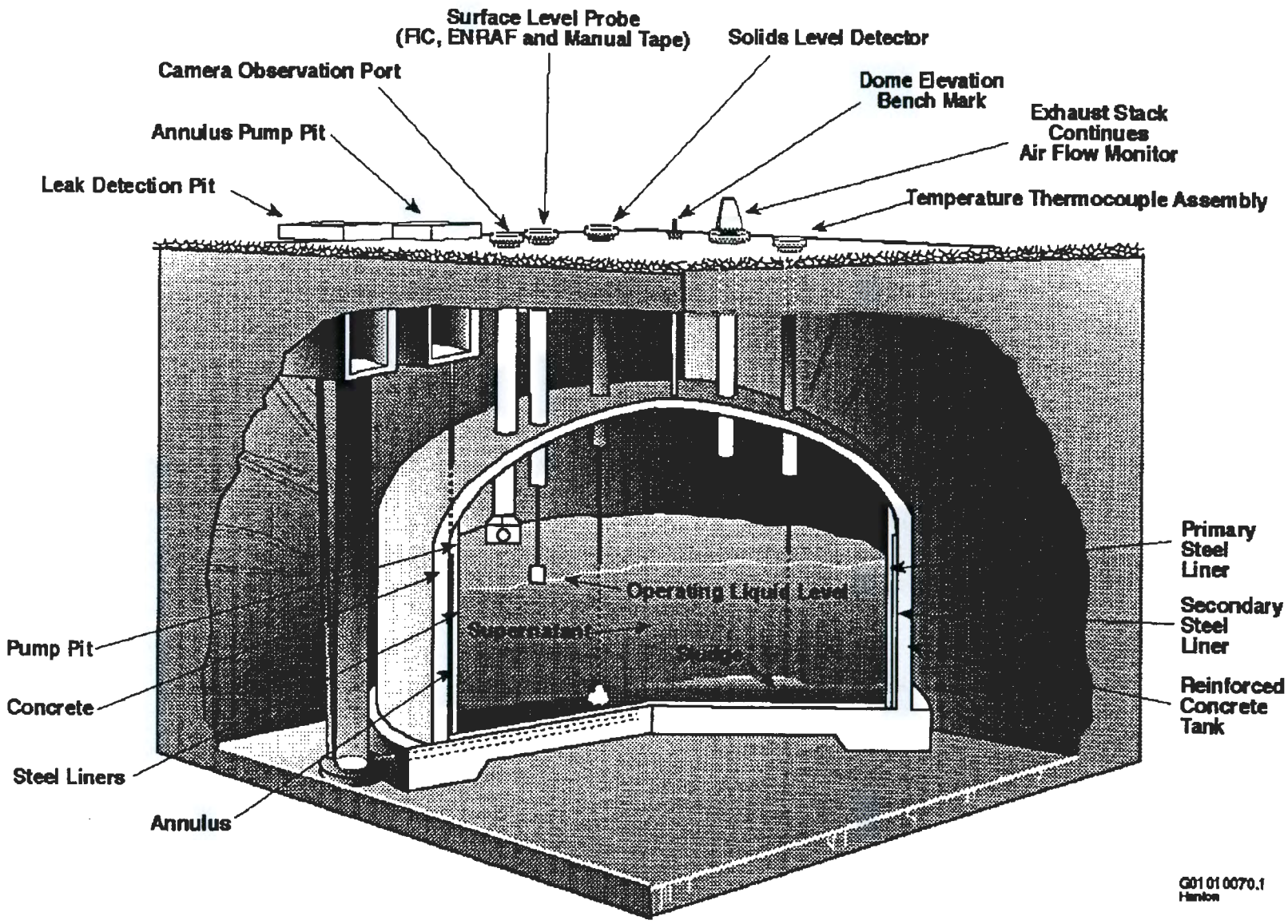



Figure I-2. Double-Shell Tank Instrumentation Configuration

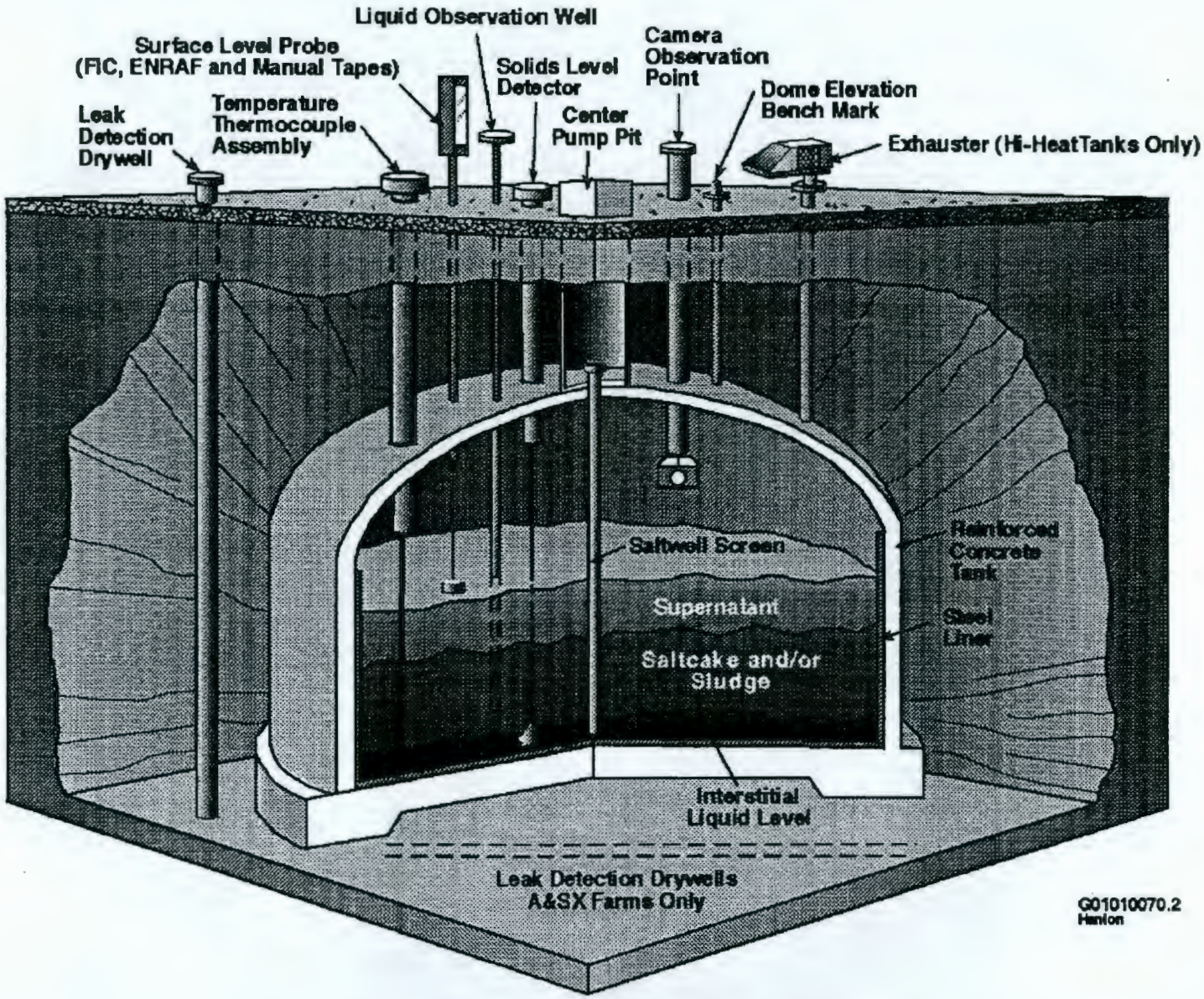



Figure I-3. Single-Shell Tank Instrumentation Configuration

# Hanford Tank Farm Facilities

# 200 East

**Note:**
**All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980**

Active Lines Only

- Concrete encased or pipe-in-pipe
- Direct Buried Pipe
- Cross-Site Transfer Lines (concrete encased or pipe-in-pipe)

Controlled, Clean and Stable | Single-Shell | Double-Shell | Intrusion Prevention Completed

Sound Tanks

All tanks 75 ft. dia. except 200 series tanks which are 20 ft. dia. @ 55,000 gal

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
ENRAF/FIC/MT = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System

High Heat Load Tanks = East Area C-106

Tank Number
Radiation Monitoring Dry Well – Approx Location
● = Active
○ = Inactive
Dry Well Monitoring No Longer Being Routinely Done; By Special Request/Project Only.
Radiation Monitoring Laterals Under Tank (X = not used)
Total Solids (1,000 gal) Salt Cake/ Sludge/DSS (Inactive Tanks)
Drainable Liquid Remaining (1000 gal) (Inactive Tanks)
Exhauster (A-104/105/106 inoperative)
Liquid-Level Gauges
▼ = FIC read manually
Y = Tape read manually
▽ = Intrusion Mode FIC
Watch List Tanks
Interim Stabilized (Yellow Tank)
■ =ENRAF Read Manually
☑ =Auto ENRAF on TMACS
Temperature Reading:
● Automatic (TMACS)
○ Manual
Airlift Circulators (AN-107 and AW-102 are inoperative)
Liquid Observation Well (LOW)
Screen – Jet Pump –
Assumed Leaker
Assumed Leaked Date

| Watch List Tanks |
|---|
| ■ H2/Flammable gases |

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**BY-Tank Farm**
In Service 1950-51
12 @ 758,000 gal

**B-Tank Farm**
In Service 1945-47
12 @ 530,000 gal
4 @ 55,000 gal

**BX-Tank Farm**
In Service 1948-50
12 @ 530,000 gal

**C-Tank Farm**
In Service 1946-53
12 @ 530,000 gal
4 @ 55,000 gal

**AN-Tank Farm**
In Service 1981
7 @ 1,160,000 gal

**AZ-Tank Farm**
In Service 1975-76
(Aging Waste Tanks)
2 @ 1,000,000 gal

**AY-Tank Farm**
In Service 1971-76
(Aging Waste Tanks) 2 @ 1,000,000 gal

**AX-Tank Farm**
In Service 1965-66
4 @ 1,000,000 gal

**A-Tank Farm**
In Service 1956-57
6 @ 1,000,000 gal

**AW-Tank Farm**
In Service 1980
6 @ 1,160,000 gal

**AP-Tank Farm**
In Service 1986
8 @ 1,160,000 gal

244-BX DCRT
ER-152
ER-151
ER-153
Cross-Site
CR Vault
244-A DCRT
WESF
B-Plant
AX-155
Valve Pits
AR-151
204 AR
AR Vault
AX-152
Valve Pits
Valve Pits
242-A Evaporator
AP Valve Pit
Grout Equip
Valve Pits
PUREX
A-151
Vault Field

**Figure I-4**
**(Schematic)**

29502006.2C
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# Hanford
# Tank Farm Facilities
# 200 West

**Note:**
**All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980**

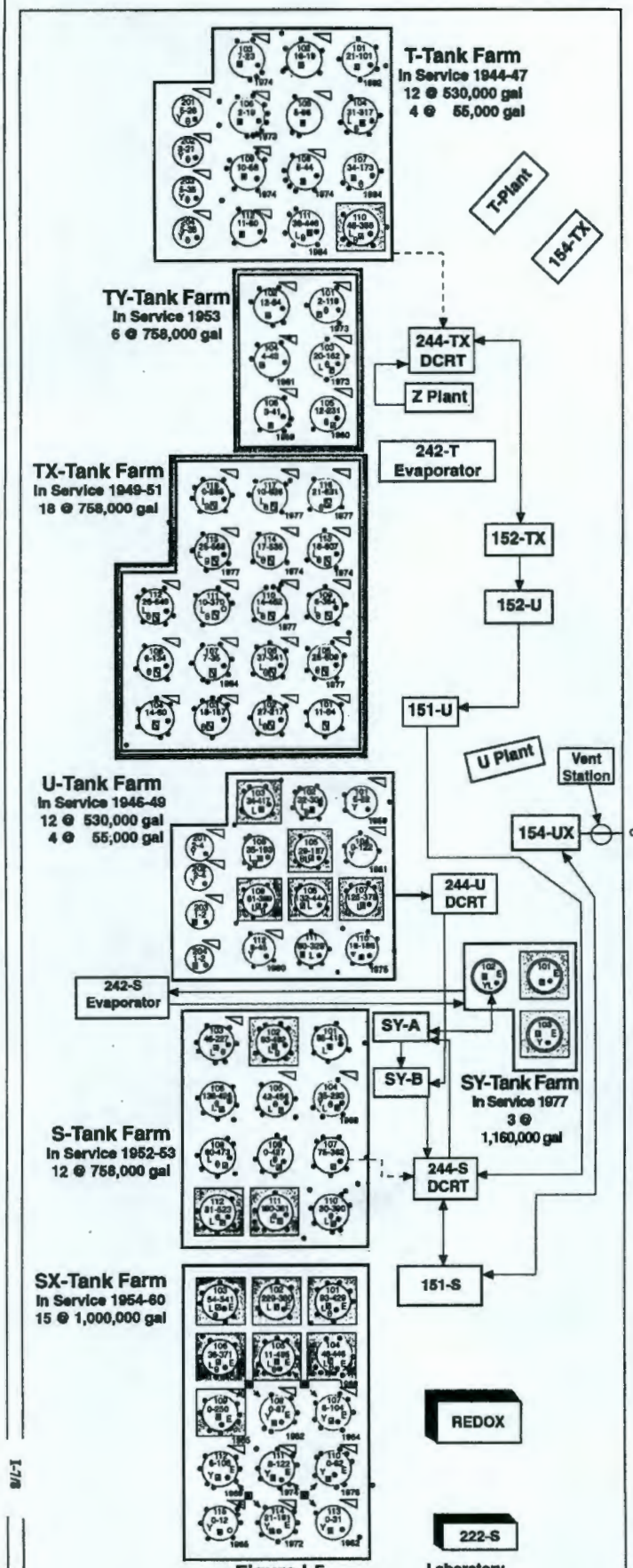
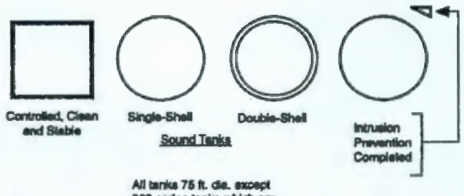



Figure I-5
(Schematic)

Active Lines Only

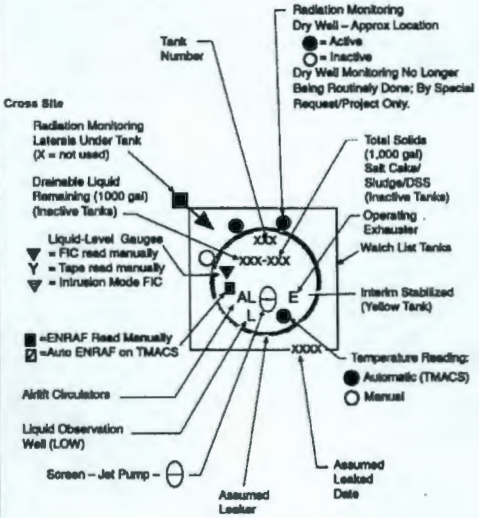
- Concrete encased or pipe-in-pipe
- Direct Buried Pipe
- Cross-Site Transfer Lines (concrete encased or pipe-in-pipe)




All tanks 75 ft. dia. except 200 series tanks which are 20 ft. dia. @ 55,000 gal

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
ENRAF/FIC/MT = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System

High Heat Load Tanks = West Area - SX-107/108/109/110/111/112/114




| Watch List Tanks |
|---|
| H2/Flammable gases (109-SX has potential only-other tanks vent through it) |

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