Tank Farm Surveillance and Waste Status Summary Report for July 1993

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

Westinghouse
Hanford Company Richland, Washington

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

Approved for Public Release

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

VED
DEC 20 1993

OSTI

LEGAL DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy. Available in paper copy and microfiche.

Available to the U.S. Department of Energy
and its contractors from
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831
(615) 576-8401

Available to the public from the U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650

Printed in the United States of America

DISCLM-1.CHP (1-91)

Tank Farm Surveillance and Waste Status Summary Report for July 1993

B. M. Hanlon

Date Published
November 1993

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

**Westinghouse
Hanford Company**

P.O. Box 1970
Richland, Washington 99352

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

Approved for Public Release

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

APPROVAL

Prepared by: B. M. Hanlon 8-25-93
B. M. Hanlon
Engineer Date

Approved by: R. E. Raymond 10-7-93
R. E. Raymond
Manager, Single-Shell
Tank Technology Date

Date Received: 10/11/93 KMB	INFORMATION RELEASE REQUEST	Reference: WHC-CM-3-4
---------------------------------------	------------------------------------	--------------------------

Complete for all Types of Release		
Purpose ☐ Speech or Presentation ☐ Full Paper ☐ Summary ☐ Abstract ☐ Visual Aid ☐ Speaker's Bureau ☐ Poster Session ☐ Videotape	☐ Reference ☒ Technical Report ☐ Thesis or Dissertation ☐ Manual ☐ Brochure/Flier ☐ Software/Database ☐ Controlled Document ☐ Other	ID Number (include revision, volume, etc.) WHC-EP-0182-64 <hr/> List attachments. <hr/> Date Release Required

Title TANK FARMS SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR JULY 1993	Unclassified Category	Impact Level 2
---	------------------------------	------------------------------

New or novel (patentable) subject matter? ☒ No ☐ Yes If "Yes", has disclosure been submitted by WHC or other company? ☐ No ☐ Yes Disclosure No(s).	Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? ☒ No ☐ Yes (Identify)
Copyrights? ☒ No ☐ Yes If "Yes", has written permission been granted? ☐ No ☐ Yes (Attach Permission)	Trademarks? ☐ No ☒ Yes (Identify) TEFZEL, trademark of E. I. du Pont de Nemours & Company

Complete for Speech or Presentation			
Title of Conference or Meeting		Group or Society Sponsoring	
Date(s) of Conference or Meeting	City/State	Will proceedings be published? ☐ Yes ☐ No	Will material be handed out? ☐ Yes ☐ No
Title of Journal			

CHECKLIST FOR SIGNATORIES				
Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval	Date
Classification/Unclassified Controlled				
Nuclear Information	☐	☒		
Patent - General Counsel	☒	☐	OGC Memo 2/4/93	
Legal - General Counsel	☒	☐	OGC Memo 2/4/93	
Applied Technology/Export Controlled Information or International Program	☐	☒		
WHC Program/Project	☒	☐	T. E. Rainey	7/14/93
Communications	☐	☒		
RL Program/Project	☒	☐	G. E. Bishop	10/21/93
Publication Services	☒	☐	M. Turner	11/3/93
Other Program/Project	☐	☒		

Information conforms to all applicable requirements.		The above information is certified to be correct.	
References Available to Intended Audience ☒ Yes ☐ No	Transmit to DOE-HQ/Office of Scientific and Technical Information ☒ Yes ☐ No	INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP Stamp is required before release. Release is contingent upon resolution of mandatory comments. <div style="text-align: center;"> </div>	
Author/Requestor (Printed/Signature) B. M. Hanlon <i>B. M. Hanlon</i> 8-25-93			
Intended Audience ☐ Internal ☐ Sponsor ☒ External Responsible Manager (Printed/Signature) R. E. Raymond <i>R. E. Raymond</i> 10/7/93			
		Date Cancelled	Date Disapproved

TANK FARM SURVEILLANCE AND WASTE STATUS
SUMMARY REPORT FOR JULY 1993

E. M. Hanlon

ABSTRACT

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 49 smaller catch 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 5820.2A, Chapter I, Section 3.e. (3) (DOE-RL, 1990, Radioactive Waste Management, U. S. Department of Energy-Richland Operation Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm Tanks.

This page intentionally left blank.

CONTENTS

SUMMARY	1
I. WASTE TANK STATUS	1
II. WASTE TANK INVESTIGATIONS	1
III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS	6

Appendixes:

A. WASTE TANK SURVEILLANCE MONITORING TABLES	A-1
--	-----

Tables:

1 Watch List Tanks	A-3
2 Tanks Containing >1000 Gram Mole of Ferrocyanide	A-5
3 Tanks With Potential for Hydrogen or Flammable Gas Accumulation above the Flammability Limit	A-7
4 Single-Shell Tanks Containing Concentrations of Organic Salts	A-8
5 Single-Shell Tanks With High Heat Loads (>40,000 Btu/h)	A-9
6 Non-Watch List Low Heat List Tanks (<40,000 Btu/h)	A-11
7 Single-Shell Tanks Monitoring Compliance Status	A-14
8 Double-Shell Tanks Monitoring Compliance Status	A-19
9 Automatic Food Instrument Corporation (FIC) Gauges Out of Service	A-21

B. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION	B-1
--	-----

Tables:

1 Double-Shell Tank Waste Type and Space Allocation	B-3
2 Double-Shell Tank Waste Inventory	B-14

Figures:

1 Current Status and Contingency Space for the 242-A Evaporator Restart	B-4
2 Total Available Usable Tank Space	B-5
3 Priority Space Availability and Usage	B-6
4 Comparison of Monthly Average Waste Generation to Management Limit by Facility	B-7
5 PUREX Monthly Waste Generations	B-8
6 Tank Farm Monthly Waste Generations	B-9
7 B Plant Monthly Waste Generations	B-10
8 T Plant Monthly Waste Generations	B-11
9 S Plant Monthly Waste Generations	B-12
10 300 Area Monthly Waste Generations	B-13

C. TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS	C-1
---	-----

1 Tank and Equipment Code/Status Definitions	C-3
--	-----

D. TANK FARM CONFIGURATION, STATUS AND FACILITY CHARTS	D-1
--	-----

Figures:

1 High-Level Waste Tank Configuration	D-3
2 Double-Shell Tank Instrumentation Configuration	D-4
3 Single-Shell Tank Instrumentation Configuration	D-5
4 Double-Shell Tank Status	D-7/8
5 200 E Single-Shell Tank Status	D-9/10
6 200 W Single-Shell Tank Status	D-11/12
7 Hanford Tank Farms Facilities Chart: 200-West Area	D-13/14
8 Hanford Tank Farms Facilities Chart: 200-East Area	D-15/16

This page intentionally left blank.

E.	MONTHLY SUMMARY	E-1
	<u>Tables:</u>	
1	Monthly Summary	E-3
2	Tank Use Summary	E-4
3	Inventory Summary by Tank Farm	E-5
4	Inventory and Status by Tank - Double-Shell Tanks	E-6
5	Inventory and Status by Tank - Single-Shell Tanks	E-9
F.	PERFORMANCE SUMMARY	F-1
	<u>Table:</u>	
1	Performance Summary	F-3
G.	PUMPING RECORD/LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANKS . .	G-1
	<u>Tables:</u>	
1	Pumping Record	G-3
2	Liquid Status and Pumpable Liquid Remaining in Tanks	G-4
H.	CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES	H-1
	<u>Tables:</u>	
1	East and West Area Catch Tanks and Special Surveillance Facilities (Active)	H-3
2	East Area Catch Tanks and Special Surveillance Facilities (Inactive)	H-4
3	West Area Catch Tanks and Special Surveillance Facilities (Inactive)	H-5
I.	LEAK VOLUME ESTIMATES	I-1
	<u>Table:</u>	
1	Single-Shell Tank Leak Volume Estimates	I-3

METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons
$^{\circ}\text{F} = \left(\frac{9}{5} ^{\circ}\text{C}\right) + 32$		
1 Btu/h = 2.930711 E-01 watts (International Table)		

This page intentionally left blank

**TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY
REPORT FOR JULY 1993
SUMMARY**

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

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
In-Service Tanks ^c	28 double-shell	10/86
Out-of-Service Tanks ^a	149 single-shell	07/88
Assumed Leaker Tanks ^f	67 single-shell	7/93
Sound Tanks	28 double-shell 82 single-shell	1986 7/93
Interim Stabilized Tanks ^{b,d}	106 single-shell	04/93
Not Interim Stabilized ^f	43 single-shell	04/93
Intrusion Prevention Completed ^e	98 single-shell	09/91
Watch List Tanks ^g	44 single-shell 6 double-shell	7/93 ^h 6/93
Total	50 tanks	7/93

^a Although all 149 single-shell tanks were removed from service (i.e., no longer authorized to receive waste) as of November 21, 1980, the category of "Out-of-Service" was not established until July 1988.

^b Of the 106 tanks classified as interim stabilized, 59 are listed as assumed leakers. The total of 106 interim stabilized tanks includes eight tanks that do not meet current established supernatant and interstitial liquid stabilization criteria: B-104, B-107, B-110, B-111, BX-110, T-102, T-112, and U-110. (These tanks did meet the criteria in existence when they were declared interim stabilized; B-107, B-110, B-111, BX-110 and U-110 are assumed leakers but surveillance data do not show an indication of a continuing leak.)

^c Six double-shell tanks listed as "in service" 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.

^d Of the 44 single-shell tanks on Watch Lists, 19 have been Interim Stabilized.

^e Of the 44 single-shell tanks on Watch Lists, 28 have completed Intrusion Prevention (this category replaced Interim Isolation). See Appendix C, Tank and Equipment Codes and Status Definitions, for "Intrusion Prevention" definition.

^f Eight of the tanks are both assumed leakers and not Interim Stabilized. See Appendix I, Leak Volume Estimates, for more details. Tank SX-102 was declared an assumed leaker in May, and reclassified as Sound in July, 1993. See "Waste Tank Investigations" section of the July 1993 report for more details.

^g See Tables A-1 through A-5 for more information on Watch List Tanks. Three tanks are currently on more than one Watch List.

^h Dates for the Watch List tanks are "officially added to the Watch List" dates. See Table A-1, Watch List Tanks, for further information.

II. WASTE TANK INVESTIGATIONS

This section includes all single-shell tanks or catch tanks on the Alert List for surface level or interstitial liquid level (ILL) decreases, or for drywell/lateral radiation level increases.

There were no tanks under investigation for surface or ILL decreases or for drywell/lateral radiation increases during July 1993.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix C 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 for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, or b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker.

Tank 241-BX-111. The surface level showed a slow erratic increasing trend since 1986. The level had increased approximately 1.00 inch from the reference baseline of 79.00 inches. A decreasing trend was observed during February 1993, but has since remained stable, fluctuating between 78.75 and 79.00 inches. The decrease criteria for this tank is 1.00 inch from the reference baseline. The liquid observation well (LOW) interstitial liquid level (ILL) was stable as of April 1, 1993. In-tank photographs were taken July 16, 1993. Figure 1, Tank 241-BX-111 In-Tank Photo, shows the location of two saltwell screens and an LOW. There appears to be approximately 90% liquid surface with about 10% floating solids.

Resolution status: When this tank was under investigation, preliminary notifications were made to regulatory agencies on March 24 and April 16, 1993. Preparations to begin emergency pumping were initiated in late March. This tank was declared an assumed re-leaker on April 30, 1993. Upon completion of pumping, the surface level baseline for the tank will be adjusted. Significant accomplishments were made in July toward emergency pumping this tank: pressure testing of transfer lines in the BX Farm was successfully completed; all maintenance-related work packages were completed except for the 244-BX Transfer Tank; liquid sampling from both the BX-110 and 111 tanks was completed; pressure switch calibration and installation on jet pumps on both tanks were completed; pump tests on the BX-110 jet pump were successfully done; and the Final Readiness Review Checklist sign-off was begun. Tanks 241-BX-110 and 111 were removed from the ferrocyanide Watch List on July 9, 1993, on the basis that the tanks contain <1000 gm moles of ferrocyanide. See Highlights, item #2.

Tank 241-SX-102. The quarterly LOW reading taken April 30, 1993, indicated a decrease of 0.2 feet from the established baseline. The rerun requested and taken on May 5, 1993, indicated a decrease of 0.3 feet which equals the established decrease criteria. Previous neutron LOW readings had been stable, fluctuating between the baseline and a 0.2-foot decrease, but the May 5, 1993, reading was the first indication of a 0.3 foot or larger decrease. An Off-Normal Report was issued at that time and the LOW frequency was increased from quarterly to weekly. The neutron LOW is the primary means of liquid level detection as this tank has a solid surface. The LOW readings taken on May 20, 1993, indicated a further decrease to 0.4 feet below the established baseline. The previous Off-Normal was upgraded to an Unusual Occurrence Report, and

proper notifications were initiated. Because of the recently observed decreasing trend, this tank was declared an "assumed leaker" on May 20, 1993. The LOW readings taken on June 30, 1993, indicated a further decrease to 1.0 feet below the established baseline. However, an improved method for measuring the ILL using LOW data has been under development. This new method does not show a recent decreasing trend. Using the improved method, Westinghouse Hanford (WHC) and Pacific Northwest Laboratories (PNL) have re-evaluated the LOW data. This re-evaluation indicated that the ILL has been on a very steady decline since at least 1987, with no acceleration of the established decrease rate. Similar constant rates of decline in ILLs are also seen in other tanks, with the decreases normally being attributed to evaporation. An evaporation study performed by WHC Waste Characterization Analysis arrived at estimated evaporation rates closely matching those seen in the revised LOW analyses. After reviewing all available information, there are no surveillance data which would indicate a loss of liquid attributed to a breach of integrity at this time. Tank 241-SX-102 meets the definition of a sound tank, and has been reclassified from "Assumed Leaker" to "Sound." See Highlights item #8, Occurrence Report RL-WHC-TANKFARM-1993-0044. This tank will no longer appear in this report, unless conditions change to warrant its inclusion.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks for which the surveillance data shows that the surface level or ILL has met or exceeded the increase criteria (this section does not include all tanks on the Alert List because the intrusion criteria for the Alert List is 50% of the increase criteria).

Tank 241-B-202. A steady increase in the surface level measurement has been observed since December 1984. The manual tape pencil plummet is contacting liquid. When the quarterly reading was obtained on October 6, 1992, the level was recorded as 144.75 inches, thus exceeding the 2.00-inch increase criteria from the established baseline of 142.50 inches. The surface level measurement was rechecked on October 9, 1992, (145.50 inches) and October 13 (145.00 inches), verifying the increase and that the criteria had been exceeded. The surface level continues to show an increase and is at 145.25 inches for June 1993. The monitoring frequency has been increased from quarterly to monthly. Occurrence Report RL-WHC-TANKFARM-1993-0024 was issued February 13, 1993. The tank was administratively stabilized in May 1985.

Resolution status: A photo package was initiated on May 11, 1993, to investigate the possibility of an intrusion. Review of previous photos was inconclusive. New photos are required to determine the actual supernatant increase, if any. A temporary baseline was established at 145.25 inches, until the new photos are available. The surface level in this tank is below the 50% action criteria based on the temporary baseline; therefore, the tank has been removed from the Alert List.

Tank 241-BX-103. On January 18, 1993, the surface level measurement in 103-BX exceeded the 0.50-inch increase criteria from the reference baseline of 19.50 inches, and was verified on January 20, 1993. The surface level measurement is currently at 20.40 inches. This tank has shown an erratic increase in surface level measurements since January 6, 1986. Discrepancy Report S&DA 93-522 was issued January 21, 1993. Occurrence Report RL-WHC-TANKFARM-1993-0036 was issued March 25, 1993. The FIC plummet is contacting liquid as indicated by in-tank photographs taken October 31, 1986. Tank 241-BX-103 is Sound, and Interim Stabilized/Intrusion Prevention completed.

Resolution status: The current level is greater than that prior to stabilization in November 1983. The tank was previously determined to have experienced an intrusion from 1977 to March 1983 (prior to stabilization). Subsequent isolation was expected to halt the intrusion, however, the intrusion is apparently ongoing. A work package was initiated on May 11, 1993, to re-seal pits and risers and to obtain in-tank photos. The photos will be used to assess the current stabilization status of the tank. A visual survey of the area was performed to determine possible paths for precipitation to enter the tank. The weather covering on the pits and risers was found in place and undamaged. The existing grade is level and revealed no obvious draining problems. Ongoing design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the heel pit have been left open. Whether precipitation can enter these lines or condensation can form in sufficient quantities is yet to be determined. These possibilities will be investigated. Photos are expected to be available for review by March 1994.

Tank 241-BY-105. The LOW ILL has shown a slow increasing trend since 1986. The ILL is at the 0.4-foot increase criteria from the reference baseline of 13.50 ft., as of June 30, 1993. The surface level manual tape does not show an increase. Discrepancy Report S&DA-93-561 was issued June 15, 1993.

Resolution Status: The surface level and ILL are displaying behavior similar to TX-113 and TX-115. The ILL is showing an increase, while the surface level measurement is showing a decrease. This phenomena could be due to either solids dissolution or formation of a depression in the solids beneath the plummet in conjunction with an intrusion. Review of previous photos indicates the liquid volume is increasing, although it cannot be verified that the solids level is decreasing. A photo package was initiated to investigate the possibility of intrusion, or solids dissolution. Photos are expected to be available for review by July 1994. This tank is on the ferrocyanide Watch List.

Tank 241-S-103. The FIC was out of service from March 8 to May 14, 1993. The surface level increased from 104.15 inches on March 8 to 104.80 inches after FIC repair on May 14, 1993. The level is at the increase criteria. The LOW, last scanned July 22, 1993, has remained stable.

Resolution status: After recalibration of the FIC on June 7, 1993, the surface level (SL) remains stable at approximately 104.65 inches. The SL shows a general increase since 1981. Review of tank level history has also shown the SL to show sudden increases following calibration. Recalibration has normally returned the SL to previous levels. Since the SL currently remains high after recalibration, it is possible that the SL has indeed reached the action criterion for this tank. A photo package for in-tank photos was initiated to investigate the possibility of an intrusion. Photos are expected to be available for review by September 1994.

Tank 241-TX-113. The LOW ILL has shown a slow increase since March 12, 1986, with both the neutron and gamma probes. This tank appeared on the Alert List in 1989, when the ILL reached 50% of the 0.4-foot increase criteria, but was removed in 1990 when the ILL appeared stable for longer than a 12-month period. The scan data on February 5, 1993, showed the ILL to be 5.5 foot and at the 0.4-foot increase criteria from the reference baseline. S&DA Discrepancy Report 93-534 was issued March 10, 1993. The LOW was last scanned July 30, 1993, and showed the ILL to be 0.3 feet above the baseline.

Resolution status: The technical evaluation of this tank was completed

April 14, 1993. The results were inconclusive, with recommendation to accelerate the October 1997 waste characterization of the tank. This characterization is expected to confirm that solids are dissolving, causing an increase in ILL. Acceleration of waste characterization is not possible. Watch List tanks have first priority for core sampling. The photo package has been written; photos are expected to be available for review by February 1994. LOW scans and surface level readings have been increased from a quarterly to a monthly frequency. Observation and monitoring will continue.

Tank 241-TX-115. The LOW ILL is exceeding the 0.4-foot increase criteria from the reference baseline. This tank has been on report since 1988, when the increase criteria was first exceeded. Comparison of past and present in-tank photographs show no significant change in surface conditions or obvious evidence of intrusion. Surveillance Deviation Report #88-08 was issued on May 18, 1988, and Event Fact Sheet #TF-EFS-88-140 was issued October 27, 1988. This tank appeared on the Executive Summary Report and Alert List until December 31, 1991, when the report was discontinued. The ILL continues to show an increase with both the neutron and gamma probes. The LOW was last scanned July 30, 1993, and showed a 1.3-foot increase from the baseline.

Resolution status: The technical evaluation of the alert condition in this tank was completed April 14, 1993. The results were inconclusive, with recommendation to accelerate the October 1997 waste characterization. Waste characterization is expected to confirm that solids are dissolving, causing an increase in ILL. Acceleration of waste characterization is not possible for non-Watch List tanks. The 1981 photos show evidence of rain intrusion through a central pump pit riser. However, it cannot be concluded from the 1988 photos that the intrusion is ongoing. A photo package was initiated and photos are expected to be available for review by February 1994. This tank will be included in the waste characterization with 113-TX. LOW scans and surface level readings have been increased from a quarterly to a monthly frequency.

Tank 241-TY-102. On November 8, 1992, the automatic FIC surface level measurement of 32.10 inches exceeded the 0.50-inch increase criteria from the reference baseline of 31.40 inches. Discrepancy Report S&DA-92-489 was issued November 9, 1992. The tank has a history of icicle buildup on the FIC plummet and intrusions. The surface level measurement was 31.80 inches as of June 30, 1993. The increase criteria of 0.50 inches is considered to be an extremely tight tolerance for this tank. The FIC readings are erratic, causing the tank to go on alert unnecessarily. The general trend of the data is level. Revising the increase criteria to 2.0 inches, which is more in line with other tanks that exhibit similar erratic surface level behavior, has been proposed for this tank. Tank 241-TX-102 is not currently on the Alert List.

Resolution status: This tank is experiencing an ongoing intrusion as is evident by comparison of November 1984 photos with July 1987 photos and an increasing trend in surface level data. A visual survey was conducted to determine possible paths for precipitation to enter the tank. The grade around the tank is level and weather covering is on the pits and intact. The photo package, initiated on May 17, 1993, will be required to assess the current stabilization status of the tank, and to assist in determining the possible paths of intrusion. Ongoing design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the pump pit have been left open. Whether precipitation can enter these lines or condensation can form in sufficient quantities is yet to be determined. These possibilities will be investigated.

Vent Station Catch Tank. The zip cord surface level reading exceeds the maximum operating limit of 36.00 inches. The manual tape has been out of service since July 7, 1992. A temporary zip cord was installed December 16, 1992. The level was 45.50 inches which exceeded the active tank limit of 50% volume of 40 inches (400 gallons). Transfers are not permitted until the tank is pumped and the level is within limits. Discrepancy Report S&DA-92-511 was issued December 24, 1992. A new calibrated zip cord was installed May 26, 1993.

Resolution status: Work packages are out to repair the manual tape and pump the catch tank. Extensive surface contamination in the surrounding area is hampering efforts to perform the needed activities. Sampling of the solution in the tank is necessary before pumping can begin. Completion of the transfer procedure is expected August 15, 1993. Estimated date of completion of pumping is September 1, 1993.

UX-302-A Catch Tank. Surface level measurement exceeds the maximum operating limit of 50.00 inches. The level is 62.60 inches which exceeds the 50% volume of 54 inches (8840 gallons). The FIC plummet is contacting liquid. Discrepancy report S&DA-92-465 was issued May 12, 1992. A work package was initiated to pressure test lines and to pump liquid level to below alarm limits.

Resolution status: Work packages for the transfer of waste from UX-302-A and the repair of necessary instrumentation are being prepared, and the transfer of waste is being scheduled as a prestart item for the Cross Site Transfer. Completion of transfer procedure is expected August 15, 1993. A work package has been prepared to sample/pump this catch tank. Expected completion date is September 1, 1993.

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Tank 241-SY-101 Gas Venting

The predicted gas release from Tank 241-SY-101 began on June 26, 1993. The initial surface level decrease was six inches, followed by smaller decreases over the next few days. At least a 7-inch drop in surface level is required before a window can be "opened," and on June 30, the tank level had decreased by 8 inches and Window "I" opening was approved for 30 days. On July 3, 1993, the 64-foot, 19,000-pound mixing pump was installed in SY-101. It is hoped to use the pump at the slowest effective speed to prevent hydrogen gas from building up to potentially explosive levels. The pump is expected to circulate liquid waste from the tank waste's upper layer and send it down toward the tank's bottom where two jet nozzles will discharge the fluid about two feet from the bottom. During the five days of Phase A testing, the pump was run for short periods each day. A gas release of 20 ppm was recorded during the final test of Phase A which was completed on July 20. Phase B testing will last for one to two months and consists of 27 different pump runs. The pump will increase speed and will run between 20 minutes and four hours per day. In addition, the nozzles will be circulating from all directions during this second phase. Larger quantities of gas are expected to be released when the pump is run faster and longer. Figure 2, Tank 241-SY-101 Mixing Pump, shows the pump being installed.

2. Four Tanks Removed from Ferrocyanide Watch List

On March 19, 1993, WHC requested approval from DOE-RL to remove six tanks (241-BX-102, BX-106, BX-110, and BX-111, BY-101 and T-101) from the ferrocyanide Watch List, on the basis that these tanks do not contain meaningful amounts of ferrocyanide sludge. This followed a study which concluded that these tanks contain <1000 gm moles of ferrocyanide. On July 9, 1993, WHC was authorized to close the ferrocyanide Unreviewed Safety Question (USQ) associated with four tanks, 241-BX-110, BX-111, BY-101 and T-101, and remove them from the Watch List. The need for special monitoring of these tank temperatures is being reviewed. DOE-RL requested WHC to make an additional evaluation and a revised approval request for BX-102 and BX-106.

3. Tank 241-SX-102 Removed from "Assumed Leaker" Status

On July 20, 1993, WHC advised DOE-RL that 241-SX-102 had been reclassified from "Assumed Leaker" to "Sound," based on a review conducted by WHC and PNL using a new improved method for evaluating neutron scan data. See Unusual Occurrence Report RL-WHC-TFARM-1993-0044 below for further details.

4. Potential New Watch List Tanks

On May 24, 1993, WHC recommended to DOE-RL that Tank 241-U-111 be included on the organic tanks Watch List. This recommendation was based on information discovered during a review of historical records, which suggests that the total organic carbon (TOC) content of interstitial liquor in this tank is approximately 14 wt.% (dry basis), which exceeds the 3 wt.% (dry basis) of the organic Watch List criteria. Tank 241-U-107, currently on the organics Watch List, is being reviewed for also adding it to the hydrogen Watch List. Both tanks are undergoing USQ screening.

5. Tank 241-C-105

In accordance with Engineering Change Notice 196834, dated June 24, 1993, which changed the status of this tank from High Heat Load to Normal, Tank C-105 has been deleted from the High Heat Load table and added to the Low Heat Load table, effective July 1993. (See June Highlights, page 6, for complete information. See also next item below).

6. Non-Watch List Low Heat Load Semiannual Temperatures

Current WHC surveillance requirements call for temperatures to be taken in 97 low heat load tanks in January and July of each year. Temperature readings were obtained in 71 tanks in July 1993. There were no readings in 26 tanks; this includes nine tanks which are listed in the WHC-SD-RE-TI-053, Rev 7, "Riser Configuration for Single-Shell Waste Tanks," September 1991, as having no trees available. Table A-6, Non-WatchList Low Heat Load Tanks, has been added to this report. Tanks C-105, formerly on the High Heat Load list, and BX-110, BX-111, BY-101, and T-101, formerly on the ferrocyanide Watch List, are included in Table A-6.

7. Criticality Safety Issues

On April 30, 1992, an Unreviewed Safety Question (USQ) concerning criticality safety issues in the Tank Farms was declared to be a reportable event. Unusual Occurrence report RL-WHC-TANKFARM-1992-0037 was issued. A

prohibition was placed on all waste transfers into and between the tank farm facilities which is negatively affecting various Hanford programs. On September 1, 1992, the approved Justification For Continued Operations (JCO) was received. This establishes the limitations for all tanks receiving transfers and also excludes any interim stabilization of single-shell tanks until further evaluations are completed and approved by DOE-HQ. On December 15, 1992, the approved JCO was issued as WHC-SD-WM-JCO-001, "Justification for Continued Operations of Hanford High Level Waste Tanks Resulting From the Criticality USQ, 492-CRITSAS." Resolution of the USQ is scheduled for summer 1993.

8. Occurrence Report

RL-WHC-TFARM-1993-0044 (UNUSUAL) - LIQUID OBSERVATION WELL (LOW) ON TANK 241-SX-102 INDICATES INTERSTITIAL LIQUID LEVEL DECREASE (Final Report)

On April 30, 1993, the quarterly Liquid Observation Well (LOW) reading taken in Tank 241-SX-102 indicated a decrease of 0.2 feet from the established baseline value. The reading was repeated on May 5, 1993, and this reading indicated a decrease of 0.3 feet which was equal to the established decrease criteria. Another reading taken on May 20, 1993, indicated an additional 0.1-foot decrease. This reading brought the total decrease to 0.4 foot, and exceeded the decrease criteria. On May 20, 1993, Tank 241-SX-102 was declared to be an "assumed leaker." Previous neutron LOW readings have been stable showing minor fluctuation between the baseline and 0.2-foot decrease. Instrument repeatability is ± 0.1 foot. The LOW is the primary means of liquid level detection because this tank has a solid surface.

This tank is actively ventilated with a waste temperature of approximately 150° F. Although decreasing level trends attributed to evaporation have been recorded on other SX Tank Farm tanks (i. e., SX-105), the SX-102 liquid level has decreased more rapidly than typically observed. Tank SX-102 is a not yet interim-stabilized, Partial Isolated Watch List Tank (Hydrogen list), actively ventilated, with 183 Kgallon drainable liquid.

Shortly after reporting this tank as an "assumed leaker," an improved method for evaluating the ILL from LOW data was developed by WHC and PNL. The new method improves on the accuracy and repeatability of the ILL measurements and reduces or eliminates some sources of variability which could previously lead to potentially misleading conclusions. Using the improved method the LOW data was re-evaluated, arriving at a different conclusion concerning the integrity status of this tank. After reviewing all available information, WHC concluded that there is no surveillance data which would indicate a loss of liquid attributed to a breach of integrity in this tank at this time, therefore, this tank meets the definition of a "sound tank." Tank 241-SX-102 was reclassified from "assumed leaker" to "sound," on July 20, 1993.

WHC intends to use the improved method for evaluating neutron scan data in LOWs for all applicable tanks starting on or before September 30, 1993.

Changes to the Report:

1. Appendix A: Surveillance Monitoring Tables

Table A-6, Non-Watch List Low Heat Load Tanks (<40,000 Btu/h) was added to this report. The temperatures in these tanks are taken semiannually, with exceptions as noted in the table. See item #5 above for more details. Tank C-105 was added to this list because it was reclassified from High Heat Load to Normal and removed from the High Heat Load List effective July 1, 1993. Tanks BX-110, BX-111, BY-101, and T-101 were removed from the ferrocyanide Watch List on July 9, 1993, and have been added to Table A-6 (see item #2 above).

Westinghouse Hanford Co. photo

Hanford workers install a giant circulation pump in Tank 101-SY on Saturday afternoon.

Figure 2. Tank 101-SY Mixing Pump

Artist's concept of mixer pump after installation in 101-SY.

This page is intentionally left blank.

APPENDIX A

WASTE TANK SURVEILLANCE MONITORING TABLES

This page intentionally left blank

TABLE A-1. WATCH LIST TANKS (Sheet 1 of 2)

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). These tanks have been identified as the Priority 1 Hanford Site Tank Farm Safety Issues: "Issues/situations that contain most necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products, e.g., Tank SY-101."

July 31, 1993

<u>Single-Shell Tanks</u>				<u>Single-Shell Tanks</u>				<u>Single-Shell Tanks</u>			
Tank No.	Category	Officially Added to Watch List		Tank No.	Category	Officially Added to Watch List		Tank No.	Category	Officially Added to Watch List	
A-101 (2)	Hydrogen	1/91		S-102 (2)	Hydrogen,	1/91		TY-101 (2)	Ferrocyanide	1/91	
AX-101 (2)	Hydrogen	1/91		(2)	Organic Salts	1/91		TY-103 (2)	Ferrocyanide	1/91	
AX-103 (2)	Hydrogen	1/91		S-111 (2)	Hydrogen	1/91		TY-104 (2)	Ferrocyanide	1/91	
B-103 (2)	Organic Salts	1/91		S-112 (2)	Hydrogen	1/91		U-103 (2)	Hydrogen	1/91	
BX-102 (2)	Ferrocyanide	1/91		SX-101 (1)(2)	Hydrogen	1/91		U-105 (2)	Hydrogen	1/91	
BX-106 (2)	Ferrocyanide	1/91		SX-102 (1)(2)	Hydrogen	1/91		U-106 (2)	Organic Salts	1/91	
BY-103 (2)	Ferrocyanide	1/91		SX-103 (1)(2)	Hydrogen	1/91		U-107 (2)	Organic Salts	1/91	
BY-104 (2)	Ferrocyanide	1/91		SX-104 (1)(2)	Hydrogen	1/91		U-108 (2)	Hydrogen	1/91	
BY-105 (2)	Ferrocyanide	1/91		SX-105 (1)(2)	Hydrogen	1/91		U-109 (2)	Hydrogen	1/91	
BY-106 (2)	Ferrocyanide	1/91		SX-106 (1)(2)	Hydrogen,	1/91		44 Tanks			
BY-107 (2)	Ferrocyanide	1/91		(1)(2)	Organic Salts	1/91		Double-Shell Tanks			Officially
BY-108 (2)	Ferrocyanide	1/91		SX-109 (1)(2)	Hydrogen because						Added to
BY-110 (2)	Ferrocyanide	1/91			other tanks vent			Tank No.	Category	Watch List	
BY-111 (2)	Ferrocyanide	1/91			thru it	1/91		AN-103 (1)(2)	Hydrogen	1/91	
BY-112 (2)	Ferrocyanide	1/91		T-107 (3)	Ferrocyanide	2/91		AN-104 (1)(2)	Hydrogen	1/91	
C-103 (2)(4)	Organic Salts	1/91		T-110 (2)	Hydrogen	1/91		AN-105 (1)(2)	Hydrogen	1/91	
C-106 (2)	High Heat Load	1/91		TX-105 (2)	Organic Salts	1/91		AW-101 (1)(5)	Hydrogen	6/93	
C-108 (2)	Ferrocyanide	1/91		TX-118 (2)	Ferrocyanide,	1/91		SY-101 (1)(2)	Hydrogen	1/91	
C-109 (2)	Ferrocyanide	1/91		(2)	Organic Salts	1/91		SY-103 (1)(2)	Hydrogen	1/91	
C-111 (2)	Ferrocyanide	1/91						6 Tanks			
C-112 (2)	Ferrocyanide	1/91									

See footnotes next page

TABLE A-1 WATCH LIST TANKS (Sheet 2 of 2)

Footnotes:

- (1) These eight single-shell tanks and the six double-shell tanks on the Watch List are actively ventilated.

Although on various dates WHC identified tanks which contained ferrocyanide, organic salts, etc., which were then added to this report as Watch List tanks, the following official notifications were made to DOE-RL:

- (2) Letter 9059124, H. D. Harmon, WHC, to R. E. Gerton, DOE-RL, "Safety Measures for Waste Tanks at Hanford Site, Richland, Washington," dated January 8, 1991, identified 23 ferrocyanide tanks, 23 tanks with potential for accumulation of flammable gas, eight organic tanks, and one high heat load tank, as being Watch List tanks. (52 tanks)

The ferrocyanide and hydrogen tanks were declared Unresolved Safety Questions (USQ); the organic tanks and the high heat load tank were within the safety envelope as defined by the safety analysis reports and were not designated as USQs.

- (3) Letter 9059124.1 (revision to 9059124 above), dated February 8, 1991, added T-107 to the Ferrocyanide Watch List. (53 tanks)

- (4) Tank C-103 was declared a USQ per Unusual Occurrence Report RL-WHC-TANKFARM-1992-0069, issued September 1992, because of an organic layer covering the surface. This tank was previously identified as a Watch List tank in footnote (2) above.

- (5) Letter 9354700, J. C. Fulton, WHC, to R. E. Gerton, DOE-RL, "Addition of Tank 241-AW-101 to Flammable Gas Watch List," dated June 3, 1993, added this double-shell tank to the Watch List. (54 tanks)

Notes: BX-110, BX-111, BY-101 and T-101 were removed from the Ferrocyanide Watch List in July 1993, per letter 93-CAB-223, John H. Anttonen, DOE-RL, to T. M. Anderson, WHC, "Resolution of Unreviewed Safety Question for Four Ferrocyanide Tanks," dated July 9, 1993.

Letter 9353957, J. C. Fulton, WHC, to R. E. Gerton, DOE-RL, "Single-Shell Waste Tank 241-U-111," dated May 24, 1993, recommended this tank be included on the Organic Tanks Watch List. This recommendation has not yet been accepted by DOE-RL.

TABLE A-2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 1 of 2)

These tanks have been declared an Unreviewed Safety Question (USQ) because their explosion potential exceeds previously reported safety analysis consequences (1). Tanks containing ferrocyanide are required to be monitored for temperatures at least weekly.

Temperatures in these tanks did not exceed the maximum temperature criteria or surveillance frequency limits for July 1993. All Watch List tanks are reviewed for increasing temperature trends. Tanks connected to TMACS are required to be monitored continuously; the others are required to be monitored weekly. Temperatures are taken in the waste unless indicated otherwise.

Tank No.		Highest Temperature Reading in Waste (F.)	Date of Reading	Monitored by TMACS (5)	Total Waste (inches) (6)	FeCN (2) (x1000 g mol)	Estimated Heat Load (3) (Btu/h) (kW)	Date Declared Assumed Leaker	Interim Stabilized Date
BX-102		65	07/08/93	No	42	<1	<10000	<2.93	1971 11/78
BX-106		64	07/16/93	No	24	<1	<10000	<2.93	Sound N/A
BY-103		81	07/26/93	Yes	153	66	8600	2.52	1973 N/A
BY-104	Riser 1	127	07/16/93	Yes	155	83	5500	1.61	Sound 1/85
BY-104	Riser 10B	115	07/12/93	Yes	155	83	5500	1.61	Sound 1/85
BY-105	Riser 10C	114	07/12/93	Yes	190	36	3400	0.97	1984 N/A
BY-105	Riser 1	121	07/18/93	Yes	190	36	3400	0.97	1984 N/A
BY-106		129	07/26/93	Yes	241	70	3300	0.97	1984 N/A
BY-107		95	07/26/93	Yes	104	42	14500	4.25	1984 7/79
BY-108		108	07/26/93	Yes	90	58	23000	6.74	1972 2/85
BY-110	Riser 1	120	07/31/93	No	152	71	25200	7.39	Sound 1/85
BY-110	Riser 10A	108	07/31/93	No	152	71	25200	7.39	Sound 1/85
BY-111	LOW	87	07/26/93	Yes	174	6	34200	10.02	Sound 1/85
BY-111	Riser 14	84	07/29/93	Yes	174	6	34200	10.02	Sound 1/85
BY-112	LOW	83	07/26/93	Yes	113	2	<10000	<2.93	Sound 5/85
BY-112	Riser 5	89	07/26/93	Yes	113	2	<10000	<2.93	Sound 5/85
C-108		73	07/29/93	No	31	25	10000	<2.93	Sound 3/84
C-109	Riser 1	76	07/08/93	No	31	30	3800	1.11	Sound 11/83
C-109	Riser 3	78	07/24/93	No	31	30	3800	1.11	Sound 11/83
C-111		74	07/16/93	No	28	33	<10000	<2.93	1968 3/84
C-112	Riser 1	78	07/29/93	No	45	31	<10000	<2.93	Sound 9/90
C-112	Riser 8	80	07/29/93	No	45	31	<10000	<2.93	Sound 9/90
T-107		64	07/29/93	No	73	5	<10000	<2.93	1984 N/A
TX-118 (4)		76	07/29/93	Yes	134	<1	4900	1.44	Sound 4/83
TY-101		64	07/26/93	Yes	50	23	<10000	<2.93	1973 8/83
TY-103		69	07/12/93	Yes	66	28	<10000	<2.93	1973 2/83
TY-104		64	07/26/93	Yes	24	12	<10000	<2.93	1981 1/83
20 Tanks		Legend: TMACS = Tank Monitoring & Control System N/A = Not Applicable							

Note: Tanks BX-110, BX-111, BY-101 and T-101 were removed from this Watch List in July 1993, per letter 93-CAB-223, John H. Anttonen, DOE-RL, to T. M. Anderson, WHC, "Resolution of Unreviewed Safety Question for Four Ferrocyanide Tanks," dated July 9, 1993.

FOOTNOTES: See next page

TABLE A-2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 2 of 2)

FOOTNOTES:

- (1) This Priority 1 Waste Tank Safety Issue is stated as follows: "Could the concentrations and distribution of ferrocyanide and nitrate/nitrite in the tanks lead to an explosion if allowed to heat up or if an uncontrolled exothermic reaction could occur?"
- (2) The amount of FeCN reported in the tanks is based on WHC-SD-WM-ER-133-REV 0, "An Assessment of the Inventories of the FeCN Watch List Tanks," (Table 3-7), October 1991.
- (3) The estimated heat generation rates are from WHC-EP-0474-4, "Quarterly Report on Defense Nuclear Facilities Safety Board Recommendation 90-7 for the Period Ending March 31, 1992," Table 1-A, dated January 1992. Tank 104-BY only estimated per WHC-EP-0521, "SST 104-BY Thermal Hydraulic Analysis," October 1991 (kW = 3412 Btu/h). A new thermal hydraulic analysis of several tanks is currently being updated and is expected to be processed for external release by the end of FY1993. This document analyzes six tanks, BY-105, 106, 108, 110, and 111, and C-109. Information from this document will be incorporated in future monthly reports as soon as the clearance process is completed.
- (4) This tank also contains a high concentration (>3% wt TOC) of organic salts.
- (5) This column indicates which tanks are being monitored by the Tank Monitoring & Control System (TMACS); automatic temperature readings are taken continuously. Temperatures in tanks connected to TMACS but temporarily not being monitored by TMACS are taken manually. Temperatures in BY-110 are currently being taken manually.
- (6) Total waste in Kgal taken from Table E-5, Inventory and Status by Tanks for SSTs. Kgal/inches calculations for the temperature tables are as follows:

$$\frac{\text{Kgal waste} - 12.5 \text{ Kgal waste}^*}{2.75 \text{ Kgal/inch}} + 12 \text{ inches}^*$$

* The bottom 12 inches in dish bottom tanks contain 12.5 Kgal. All tanks are calculated as dish bottom tanks for the temperature tables, although A and AX farms have flat bottoms. Inches are from centerline tank bottom.

**TABLE A-3. TANKS WITH POTENTIAL FOR HYDROGEN OR FLAMMABLE GAS ACCUMULATION
ABOVE THE FLAMMABILITY LIMIT (Watch List Tanks)**

These tanks have been declared an Unreviewed Safety Question (USQ) because of the potential consequences of a radiological release resulting from a flammable gas burn, an event not analyzed in previous safety analyses.

Temperatures in these tanks did not exceed the applicable maximum temperature criteria or surveillance frequency limits for the month of July 1993. All Watch List tanks are reviewed for increasing temperature trends. Temperatures are taken in the waste unless indicated otherwise.

Tank No.		Highest Temperature Reading (F.) in Waste	Date of Reading	Total Waste (3) (inches)	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
A-101		154	07/02/93	354	Weekly	SOUND	N/A
AX-101		140	07/02/93	279	Weekly	SOUND	N/A
AX-103		112	07/30/93	48	Weekly	SOUND	8/87
S-102 (2)		105	07/29/93	207	Weekly	SOUND	N/A
S-111		90	07/29/93	224	Weekly	SOUND	N/A
S-112		82	07/22/93	239	Weekly	SOUND	N/A
SX-101		136	07/20/93	173	Weekly	SOUND	N/A
SX-102		150	06/18/93	205	Weekly	1993	N/A
SX-103		172	07/29/93	245	Weekly	SOUND	N/A
SX-104		167	07/29/93	231	Weekly	1988	N/A
SX-10		178	07/29/93	256	Weekly	SOUND	N/A
SX-106 (2)		111	07/29/93	203	Weekly	SOUND	N/A
SX-109 (1)	Riser 2	143	07/29/93	98	Weekly	1965	5/81
SX-109	Riser 8	147	07/29/93	98	Weekly	1965	5/81
T-110		61	07/30/93	145	Weekly	SOUND	N/A
U-103		84	07/22/93	178	Weekly	SOUND	N/A
U-105		87	07/22/93	159	Weekly	SOUND	N/A
U-108		85	07/22/93	178	Weekly	SOUND	N/A
U-109		83	07/22/93	176	Weekly	SOUND	N/A
AN-103	Double-shell tank	115	07/22/93		Weekly	SOUND	N/A
AN-104	Double-shell tank	124	07/13/93		Weekly	SOUND	N/A
AN-105	Double-shell tank	112	07/13/93		Weekly	SOUND	N/A
AW-101 (4)	Double-shell tank	107	07/19/93		Weekly	SOUND	N/A
SY-101 (5)	Double-shell tank	100	07/22/93		Daily	SOUND	N/A
SY-103	Double-shell tank	100	07/02/93		Weekly	SOUND	N/A
24 Tanks						Legend: N/A = Not Applicable	

(1) Tank SX-109 has the potential for flammable gas accumulation only because other SX tanks vent through it

(2) Tanks S-102 and SX-106 also contain potentially high concentrations of organic salts

(3) See footnote (6) in Table A-2 (Ferrocyanide Tanks) for Total Waste/Inches calculations

(4) Tank 241-AW-101 was added to this list per letter 9354700, J. C. Fulton, WHC, To R. E. Gerton, DOE-RL, "Addition of Tank 241-AW-101 to Flammable Gas Watch List," dated June 3, 1993.

(5) Temperature dropped after gas release which occurred on 6/26/93.

**TABLE A-4. SINGLE-SHELL TANKS CONTAINING CONCENTRATIONS OF ORGANIC SALTS
>3 WEIGHT % TOC (Watch List Tanks)**

These tanks have organic chemicals which are potentially flammable and mixtures of organic materials mixed with nitrate and nitrate salts can deflagrate. They are listed here because of their "potential for release of high level waste because of uncontrolled increases in the temperature or pressure." Double-Shell tanks having >3 Weight % TOC are not on the Watch List because they contain mostly liquid and there is no credible organic safety concern for tanks which contain mostly liquid. The safety concern is with tanks that primarily contain solids because they could dry out and heat up, and "high organic concentrations in the tanks could support an exothermic reaction at elevated temperatures (350 degrees F/180 degrees C)." These tanks (with the exception of C-103), do not have an associated USQ because the presence of organic material was reviewed in the SST Safety Analysis Report.

Temperatures in these tanks did not exceed the applicable maximum temperature criteria or surveillance frequency limits for the month of July 1993. These tanks are monitored weekly. All Watch List tanks are reviewed for increasing temperature trends.

Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Temperature Reading (F.) in Waste	Date of Reading	Total Waste Inches (4)	Assumed Leaked Date	Interim Stabilized Date
B-103	61	07/08/93	29	1978	2/85
C-103 (3)	119	07/29/93	78	SOUND	N/A
S-102 (1)	105	07/29/93	207	SOUND	N/A
SX-106 (1)	111	07/29/93	203	SOUND	N/A
TX-105	96	07/29/93	228	1977	9/83
TX-118 (2)	76	07/29/93	134	SOUND	4/83
U-106	78	07/22/93	90	SOUND	N/A
U-107	75	07/22/93	155	SOUND	N/A
8 Tanks					

(1) These tanks also have the potential for hydrogen or flammable gas accumulation

(2) Tank TX-118 also contains ferrocyanide

(3) Tank C-103 was declared a USQ per Unusual Occurrence Report RL-WHC-TANKFARM-1992-0069, issued September 1992, because of an organic layer covering the surface.

(4) See footnote (6) in Table A-2 (Ferrocyanide Tanks) for Total Waste/Inches calculations

TABLE A-5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/h)(Sheet 1 of 2)

High heat load tanks have temperature surveillance requirements established by SD-WM-SAR-006 REV 1, "SST Isolation Safety Analysis Report," dated January 1986, and OSD-T-151-00013 REV D-O, "Operating Specifications for Single-Shell Waste Storage Tanks," dated August 1990. While all of these tanks are considered high heat load tanks per SAR definition, only one (241-C-106) is on the High Heat Watch List.

Temperatures in these tanks did not exceed SAR or OSD requirement limits for the month of July 1993. All high heat load tanks are on active ventilation. These high heat tanks are reviewed for increasing temperature trends.

Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Location (6)	Temperature Reading (F.) in Waste	Date of Reading	Total Waste Inches (7)	Monitoring Frequency	Estimated Heat Load (1)		Date Declared Assumed Leaker	Interim Stabilized Date
A-104 (4)	R-18	196	07/24/93	18	Weekly	50000	15	1975	9/78
A-105 (4)	R-16	152	07/26/93	14	Weekly	50000	15	1963	7/79
C-106 (2)(3)	Riser 8	154	07/31/93	91	Weekly	150000	44	SOUND	N/A
C-106 (2)(3)	Riser 14	129	07/24/93	91	Weekly	150000	44	SOUND	N/A
SX-107	Tree 2	164	07/01/93	45	Monthly	42000	12	1964	10/79
SX-107	Tree 8	162	07/01/93	45	Monthly	42000	12	1964	10/79
SX-108	Tree 2	188	07/01/93	49	Monthly	45000	13	1962	8/79
SX-108	Tree 8	194	07/01/93	49	Monthly	45000	13	1962	8/79
SX-109 (3)	Tree 2	143	07/29/93	98	Weekly	50000	15	1965	5/81
SX-109 (3)	Tree 8	147	07/29/93	98	Weekly	50000	15	1965	5/81
SX-110	Tree 2	168	07/01/93	30	Monthly	42000	12	1976	8/79
SX-110	Tree 8	163	07/01/93	30	Monthly	42000	12	1976	8/79
SX-111	Tree 2	183	07/01/93	53	Monthly	44000	13	1974	7/79
SX-111	Tree 8	153	07/01/93	53	Monthly	44000	13	1974	7/79
SX-112	Tree 2	144	07/01/93	41	Monthly	43000	13	1969	7/79
SX-112	Tree 8	155	07/01/93	41	Monthly	43000	13	1969	7/79
SX-114	Tree 2	182	07/01/93	73	Monthly	58000	17	1972	7/79
SX-114	Tree 8	179	07/01/93	73	Monthly	58000	17	1972	7/79
10 Tanks						Legend: Tree = Thermocouple Tree			

A-105 Laterals 242 07/20/93 Weekly

Temperatures are taken in 34 thermocouples located in the laterals beneath A-105. SAR requirements (see top of table) do not apply to these temperatures; however, Westinghouse Hanford has voluntarily chosen to apply the waste temperature limits to the soil temperature for surveillance reporting.

Footnotes - see next page

TABLE A-5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/h)(Sheet 2 of 2)

Footnotes:

- (1) High heat loads as of 1988, evaluation completed April 20, 1989 (kW = 3412 Btu/h). The predominant heat load for these tanks is from CS 137 (half life of 30 years) and SR 90 (half life of 28.1 years). Tank C-105 was re-evaluated in WHC-SD-WM-ER-178, "Thermal Analysis of Tank 241-C-105 in Support of Process Test," January 1993. Engineering Change Notice #196834, June 24, 1993, changed the status of C-105 from High Heat Load to Normal, effective July 1, 1993.
- (2) Periodic water additions are required in C-106 to maintain evaporative cooling and thus prevent overheating. This tank is scheduled for partial retrieval starting in 1997, at which time cooling water additions will be discontinued.
- (3) Watch List Tanks: C-106 is on the Watch List because "without water additions (in the event of a leak) the tank could exceed structural temperature limits resulting in unacceptable structural damage." SX-109 is on the hydrogen Watch List because it has the potential for flammable gas accumulation due to other SX tanks venting through it.
- (4) A-104/105/106 exhaustor has been out of service from October 1, 1991, until August 20, 1992, when it was briefly restarted. Problems exist which must be resolved before the exhaustor is operational. Temperatures in A-104 and A-105 are monitored weekly.
- (5) Maximum lateral temperatures under A-105 increased 20 degrees F. by January 1992, but then dropped a few degrees and have remained fairly stable at current temperature. These temperatures are monitored weekly.
- (6) Tanks A-104 and A-105
Two temperature probes are installed in risers in A-104, and six are installed in risers in A-105. These are individual probes. In A-104, the probes are in contact with the sludge; in A-105, they are in contact with the bottom of the tank (A-105 has a bulged bottom).

Tank C-106

Tank C-106 has six functioning thermocouples (#1 through 6).

Tanks SX-107, 108, 109, 110, 111, 112, and 114

Each of these tanks has eight thermocouple trees, with eight thermocouples on each tree, with the exception of SX-108, which has four operational thermocouples on each of two trees. Tree #2 and Tree #8 are monitored in each of these SX tanks..

- (8) Calculations for Total Waste Inches: see footnote (6), Table A-2 (Ferrocyanide Tanks)
- (9) There are 19 single-shell tanks with active ventilation (eight are on the Watch List as indicated by an asterisk):

A-104	SX-101 *	SX-107
A-105	SX-102 *	SX-108
A-106	SX-103 *	SX-109 *
C-104	SX-104 *	SX-110
C-105	SX-105 *	SX-111
C-106 *	SX-106 *	SX-112
		SX-114

TABLE A-6. NON-WATCH LIST LOW HEAT LOAD TANKS (<40,000 Btu/h)

(Page 1 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 97 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste		Total Waste (1)		Comments
		Jan. 93	Jul. 93	Kgal	Inches	
1	A-102	92	92	41	15	
2	A-103	117	117	370	135	
3	A-106	138	137	125	50	
4	AX-102	O/S	76	39	10	Only TC#5 working on 7/93, reading in vapor space Control box contaminated inside
5	AX-104	97	98	7	3	
6	B-101	110	108	113	48	
7	B-102	62	63	32	19	TC#1 O/S, reading in vapor space
8	B-104	68	66	371	142	
9	B-105	68	66	306	50	
10	B-106	61	62	117	67	TC#1 & 2 O/S
11	B-107	62	62	165	41	TC#1 thru 3 O/S, reading in vapor space
12	B-108	62	62	94	54	
13	B-109	62	61	127	97	
14	B-110	O/S	68	246	94	TC#1 thru 4 O/S. Reading in vapor space
15	B-111	O/S	86	237	19	TC#1 & 2 O/S, work order issued, historical readings erratic
16	B-112	62	63	33	7	
17	B-201	58	60	29	151	
18	B-202	59	61	27	141	
19	B-203	62	62	51	263	
20	B-204	59	62	50	258	
21	BX-101	O/S	O/S	43	27	All TCs O/S, work order issued, last reading 74 F. in 11/92
22	BX-103	O/S	O/S	66	31	All TCs O/S, last reading 77 F. in 10/92
23	BX-104	O/S	O/S	99	43	(2) No TC tree per Riser Configuration document Last reading 87 F. in 10/80
24	BX-105	66	63	51	26	
25	BX-107	O/S	O/S	345	133	All TCs O/S, work order issued, last reading 69 F. in 10/82
26	BX-108	O/S	63	26	17	No relay box in 1/93
27	BX-109	O/S	77	193	78	No relay box in 1/93, no historical readings available
28	BX-110	-	68	199	80	Monitored weekly, formerly on ferrocyanide Watch List
29	BX-111	-	65	230	91	Monitored weekly, formerly on ferrocyanide Watch List
30	BX-112	O/S	62	165	67	No relay box in 1/93
31	BY-101	-	75	387	148	Monitored weekly, formerly on ferrocyanide Watch List
32	BY-102	O/S	O/S	341	131	(2) No TC tree per Riser Configuration document. Last reading 72 F. in 4/79
33	BY-109	O/S	O/S	423	161	(2) No TC tree per Riser Configuration document.

TABLE A-6. NON-WATCH LIST LOW HEAT LOAD TANKS (<40,000 Btu/h)

(Page 2 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 97 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste		Total Waste (1)		Comments
		Jan. 93	Jul. 93	Kgal	Inches	
34	C-101	91	88	88	39	
35	C-102	O/S	O/S	423	161	Broken coupling, work order issued, last reading 96 F. in 11/92
36	C-104	88	87	295	115	TC#1 thru 5 O/S, reading in vapor space
37	C-105	-	92	150	63	Monitored weekly, formerly on High Heat Load list
38	C-107	-	111	275	107	Monthly reading requirement per procedure, monitored weekly
39	C-110	65	65	187	75	TC#1 thru 4 O/S, reading in vapor space
40	C-201	60	61	2	13	
41	C-202	58	61	1	8	
42	C-203	58	60	5	29	
43	C-204	O/S	O/S	3	18	No hookup to tree, last reading prior to '91.
44	S-101	O/S	115	427	162	TC#1, 3, 5, & 6 O/S, work order issued
45	S-103	88	85	248	98	
46	S-104	108	104	294	114	
47	S-105	77	73	456	173	
48	S-106	81	78	543	205	
49	S-107	106	107	368	129	
50	S-108	87	85	604	227	
51	S-109	83	O/S	568	214	All TCs O/S
52	S-110	117	116	390	149	
53	SX-113	75	73	26	15	
54	SX-115	O/S	O/S	12	10	(2) No TC junction box, last reading prior 12/91
55	T-101	-	66	102	45	Monitored weekly, formerly on ferrocyanide Watch List
56	T-102	O/S	O/S	32	19	(2) No TC tree per Riser Configuration document, last reading 68 F. in 2/81
57	T-103	58	59	27	17	
58	T-104	62	O/S	445	169	All TCs O/S, work order issued
59	T-105	O/S	O/S	98	43	(2) No TC tree per Riser Configuration document
60	T-106	58	59	21	15	
61	T-108	O/S	O/S	180	73	All TCs O/S, TC tree laying on ground, J-3 issued 1/92 and again 7/93, last reading 63 F. in 11/91
62	T-109	O/S	O/S	58	29	All TCs O/S, work order issued, last reading 75 F. in 2/91
63	T-111	62	59	458	174	TCs #1, 2, 5, 6 O/S
64	T-112	62	58	67	32	
65	T-201	61	59	29	150	
66	T-202	61	58	21	110	
67	T-203	61	75	35	182	
68	T-204	62	60	38	197	

TABLE A-6. NON-WATCH LIST LOW HEAT LOAD TANKS (<40,000 Btu/h)

(Page 3 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 97 single-shell tanks. Legend follows table.

Tank No.	Highest Temperatures taken in waste		Total Waste (1)		Comments
	Jan. 93	Jul. 93	Kgal	Inches	
69	TX-101	O/S	O/S	87 39	(2) No TC tree per Riser Configuration document
70	TX-102	O/S	O/S	113 49	Cable cut from tree
71	TX-103	71	55	157 54	Cable cut from tree, readings taken by Instrument Technician
72	TX-104	64	60	65 31	Cable cut from tree, readings taken by Instrument Technician
73	TX-106	80	59	453 172	Cable cut from tree, readings taken by Instrument Technician
74	TX-107	67	60	36 21	Cable cut from tree, readings taken by Instrument Technician
75	TX-108	65	61	134 56	Cable cut from tree, readings taken by Instrument Technician
76	TX-109	97	64	384 147	Cable cut from tree, readings taken by Instrument Technician
77	TX-110	81	O/S	462 175	Cable cut from tree, readings taken by Instrument Technician
78	TX-111	73	61	370 142	Cable cut from tree, readings taken by Instrument Technician
79	TX-112	72	72	649 243	Cable cut from tree, readings taken by Instrument Technician
80	TX-113	73	65	607 228	Dial pushed inside housing, readings taken by Instr. Tech.
81	TX-114	O/S	O/S	535 202	Cable cut from TC tree
82	TX-115	70	67	640 240	Dial pushed inside housing, readings taken by Instr. Tech.
83	TX-116	O/S	O/S	631 237	(2) Tree cut off in riser per Riser Configuration document
84	TX-117	O/S	O/S	626 235	All TCs O/S, cable cut from tree
85	TY-102	O/S	O/S	64 31	No selector switch, last reading 64 F. in 12/91
86	TY-105	75	77	231 91	
87	TY-105	60	60	17 14	
88	U-101	66	61	25 17	
89	U-102	88	81	374 143	
90	U-104	O/S	O/S	122 52	(2) No TC tree per Riser Configuration document
91	U-110	81	72	186 75	
92	U-111	84	76	329 127	Monitored weekly, anticipate adding to organics Watch List
93	U-112	62	61	49 25	
94	U-102	O/S	O/S	5 29	All TCs O/S, work order written, last reading 66 F. in 11/92
95	U-202	60	59	5 29	
96	U-203	59	O/S	3 18	
97	U-204	O/S	O/S	3 18	Selector knob not working 1/93, suspect readings obtained 7/7

(1) See Table A-2 (footnote 6) for waste gallons/inches calculations.

(2) Thermocouples in nine tanks (BX-104, BY-102, BY-109, SX-115, T-102, T-105, TX-101, TX-116, and U-104) are out of service due to no TC trees in these tanks, or the thermocouples have been cut off, covered over, or are otherwise unable to function, per the Riser Configuration document. (Also see comment section above)

LEGEND:	
TC - Thermocouple	
O/S - Out of service	
Riser Configuration document - WHC-SD-RE-TI-053, REV 8, "Riser Configuration Document for Single-Shell Tanks," September 1991	
SUMMARY:	
Readings obtained in July 1993	71
No readings (TC trees O/S - includes nine tanks with no trees - see footnote above)	26
Total low heat load tanks	97

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 5)

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. (5)
 All Dome Elevation Survey monitoring is in compliance.
 All Drywell monitoring is in compliance.
 Psychrometrics (2)
 In-tank Photographs (3)
 Pressure Monitoring (6)
 CAM/RAMP Monitoring (7)
 Vapor Monitoring (8)

LEGEND:

(Shaded)	= In compliance with all applicable documentation
O/C	= Out of compliance with documentation
-357	= WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria"
POP	= Plant Operating Procedure TO-040-650, "Obtain/Record SST Temperatures"
M.T.	= Manual Tape
FIC	= Food Instrument Company
OSR/SAR	= Operations Safety Requirements/Safety Analysis Report, SD-WM-SAR-006, Rev 2, 2/86; -SAR-034, Rev 0, 6/81
OSD	= Operating Specifications Doc., OSD-T-151-00013, Rev D-O, 8/80
N/A	= Not Applicable (i.e., no LOW, M.T., FIC installed)
O/S	= Out of Service
Gamma	= LOW readings taken by Gamma probe
Neutron	= LOW readings taken by Neutron probe

Information as of 7/31/93

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357)		Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Gamma	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
A-101	X				N/A			O/C		
A-102				N/A		N/A	N/A	O/C		
A-103				N/A				O/C		
A-104		X			N/A	N/A	N/A			
A-105		X			N/A	N/A	N/A			
A-106				N/A		N/A	N/A			
AX-101	X			N/A						
AX-102				O/C	N/A	N/A	N/A			
AX-103	X			N/A		N/A	N/A			
AX-104					N/A	N/A	N/A			
B-101				N/A		N/A	N/A			
B-102				N/A		N/A	N/A			
B-103	X			N/A		N/A	N/A			
B-104					N/A					
B-105					N/A					
B-106				N/A		N/A	N/A			
B-107					N/A	N/A	N/A			
B-108				N/A		N/A	N/A			
B-109					N/A	N/A	N/A			
B-110				O/C	N/A	N/A	N/A			
B-111				N/A		N/A	N/A			
B-112				N/A		N/A	N/A			
B-201					N/A	N/A	N/A			
B-202					N/A	N/A	N/A			
B-203					N/A	N/A	N/A			
B-204					N/A	N/A	N/A			
BX-101			O/C		N/A	N/A	N/A			
BX-102	X				N/A	N/A	N/A			
BX-103			O/C	N/A		N/A	N/A			
BX-104			O/S-O/C	N/A		N/A	N/A			
BX-105				N/A		N/A	N/A			
BX-106	X			N/A		N/A	N/A			
BX-107			O/C	N/A	O/C	N/A	N/A			

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 2 of 5)

Information as of 7/31/93

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357)		Radiation Readings		Dome Elevation Surveys (OSF/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Gamma	Neutron	Lateral Readings (-357)	Drywell Readings (OSF/SAR)	
BX-108					N/A	N/A	N/A	N/A		
BX-109				N/A		N/A	N/A	N/A		
BX-110 (4)					N/A	N/A	N/A	N/A		
BX-111 (4)					N/A			N/A		
BX-112				N/A		N/A	N/A	N/A		
BY-101 (4)				O/C	N/A			N/A		
BY-102			O/S-O/C		N/A			N/A		
BY-103	X				N/A			N/A		
BY-104	X				N/A			N/A		
BY-105	X				N/A			N/A		
BY-106	X				N/A			N/A		
BY-107	X				N/A			N/A		
BY-108	X				N/A	N/A	N/A	N/A		
BY-109			O/S-O/C	N/A				N/A		
BY-110	X				N/A			N/A		
BY-111	X				N/A			N/A		
BY-112	X				N/A	O/C	O/C	N/A		
C-101					N/A	N/A	N/A	N/A		
C-102			O/C	N/A		N/A	N/A	N/A	N/A	
C-103	X			N/A		N/A	N/A	N/A		
C-104				N/A		N/A	N/A	N/A		
C-105				N/A		N/A	N/A	N/A		
C-106 (4)	X	X		N/A		N/A	N/A	N/A		
C-107				N/A	O/C	N/A	N/A	N/A		
C-108	X				N/A	N/A	N/A	N/A		
C-109	X				N/A	N/A	N/A	N/A		
C-110					N/A	N/A	N/A	N/A		
C-111	X				N/A	N/A	N/A	N/A		
C-112	X				N/A	N/A	N/A	N/A		
C-201					N/A	N/A	N/A	N/A		
C-202					N/A	N/A	N/A	N/A		
C-203					N/A	N/A	N/A	N/A		
C-204			O/C		N/A	N/A	N/A	N/A		
S-101				N/A				N/A		
S-102	X			N/A				N/A		
S-103				N/A				N/A		
S-104					N/A	N/A	N/A	N/A		
S-105				N/A				N/A		
S-106				N/A				N/A		
S-107				N/A		N/A	N/A	N/A		
S-108								N/A		
S-109			O/C	N/A	O/S (9)			N/A		
S-110				N/A				N/A		
S-111	X			N/A	O/C			N/A		
S-112	X			N/A				N/A		
SX-101	X			N/A				N/A		
SX-102	X			N/A				N/A		
SX-103	X			N/A				N/A		
SX-104	X			N/A		O/S-O/C	O/S-O/C	N/A		
SX-105	X			N/A				O/C		
SX-106	X			N/A	O/C			N/A		
SX-107		X			N/A	N/A	N/A	O/C		
SX-108		X			N/A	N/A	N/A	O/C		

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 3 of 5)

Information as of 7/31/93

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357)		Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Gamma	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
SX-109 (4)	X	X			N/A	N/A	N/A	O/C		
SX-110		X			N/A	N/A	N/A	O/C		
SX-111		X			N/A	N/A	N/A	O/C		
SX-112		X			N/A	N/A	N/A	O/C		
SX-113					N/A	N/A	N/A	N/A		
SX-114		X			N/A	N/A	N/A	O/C		
SX-115			O/S - O/C		N/A	N/A	N/A	O/C		
T-101 (4)						N/A	N/A	N/A		
T-102			O/S - O/C	N/A	O/C	N/A	N/A	N/A		
T-103				N/A		N/A	N/A	N/A		
T-104			O/C		N/A			N/A		
T-105			O/S - O/C	N/A		N/A	N/A	N/A		
T-106				N/A		N/A	N/A	N/A		
T-107	X			N/A		N/A	N/A	N/A		
T-108			O/C		N/A	N/A	N/A	N/A		
T-109			O/C	N/A		N/A	N/A	N/A		
T-110	X			N/A				N/A		
T-111				N/A	O/C			N/A		
T-112				N/A		N/A	N/A	N/A		
T-201					N/A	N/A	N/A	N/A		
T-202					N/A	N/A	N/A	N/A		
T-203					N/A	N/A	N/A	N/A		
T-204					N/A	N/A	N/A	N/A		
TX-101			O/S - O/C	N/A		N/A	N/A	N/A		
TX-102			O/C		N/A			N/A		
TX-103				N/A		N/A	N/A	N/A		
TX-104				N/A		N/A	N/A	N/A		
TX-105	X				N/A	O/S-O/C	O/S-O/C	N/A		
TX-106					N/A			N/A		
TX-107				N/A		N/A	N/A	N/A		
TX-108				N/A				N/A		
TX-109				N/A				N/A		
TX-110			O/C		N/A			N/A		
TX-111					N/A			N/A		
TX-112					N/A			N/A		
TX-113					N/A			N/A		
TX-114			O/C		N/A			N/A		
TX-115					N/A			N/A		
TX-116			O/S O/C		N/A	N/A	N/A	N/A		
TX-117			O/C		N/A			N/A		
TX-118	X			N/A				N/A		
TY-101	X			N/A		N/A	N/A	N/A		
TY-102			O/C	N/A		N/A	N/A	N/A		
TY-103	X			N/A				N/A		
TY-104	X			N/A		N/A	N/A	N/A		
TY-105					N/A	N/A	N/A	N/A		
TY-106					N/A	N/A	N/A	N/A		
U-101					N/A	N/A	N/A	N/A		
U-102				N/A				N/A		
U-103	X			N/A				N/A		
U-104			O/S - O/C		N/A	N/A	N/A	N/A		
U-105	X			N/A				N/A		
U-106	X			N/A				N/A		

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 4 of 5)

Information as of 7/31/93

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357)		Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Gamma	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
U-107	X			N/A				N/A		
U-108	X			N/A				N/A		
U-109	X			N/A	O/C			N/A		
U-110				N/A		N/A	N/A	N/A		
U-111				N/A				N/A		
U-112					N/A	N/A	N/A	N/A		
U-201			O/C		N/A	N/A	N/A	N/A		
U-202					N/A	N/A	N/A	N/A		
U-203			O/C		N/A	N/A	N/A	N/A		
U-204			O/C		N/A	N/A	N/A	N/A		
Catch Tanks and Special Surveillance Facilities										
A-302-A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
A-302-B	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
311-ER	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
152-AX	N/A	N/A	N/A		N/A					
151-AZ	N/A	N/A	N/A	N/A	O/S (9)	N/A	N/A	N/A	N/A	N/A
154-AZ	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
BX-TK/SMP	N/A	N/A	N/A		N/A					
A-TK/SMP	N/A	N/A	N/A		N/A					
204-AR	N/A	N/A	N/A							
417-A	N/A	N/A	N/A							
Vent Sta.	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
S-302	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
S-302-A	N/A	N/A	N/A	N/A	O/C	N/A	N/A	N/A	N/A	N/A
S-304	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
TX-302-B	N/A	N/A	N/A	O/C	N/A	N/A	N/A	N/A	N/A	N/A
TX-302-C	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
U-301-B	N/A	N/A	N/A	N/A	O/C	N/A	N/A	N/A	N/A	N/A
UX-302-A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
141-S	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
142-S	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
Totals: 149 tanks	44 Watch List Tanks (4)	10 High Heat Tanks (4)	O/C: 26 tanks - (semiannual monitoring frequency) (5)	O/C: 3 tanks 1 catch tank	O/C: 7 tanks 2 catch tanks	O/C: 3 tanks	O/C: 3 tanks	O/C: 12 tanks	0	0
						58 tanks have LOWs (2 are O/S)				

See Footnotes on next page

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 5 of 5)

Footnotes:

1. All SSTs have either manual tape or FIC, with the exception of S-108 and T-101, which have both. Tank 101-T also has a zip cord. All SST FICs are connected to CASS, with the exception of BX-106; however, the connection for many tanks is broken. For such cases, manual readings are taken. Manual surface level readings include readings taken by manual tape, manual FIC (not connected to CASS; BX-106), manual readings of automatic FIC (if CASS is printing "0"), or automatic FIC. In some cases, the surface level readings are taken using a zip cord. While less accurate, such readings are acceptable for meeting the surface level reading requirements.
2. Psychrometric readings are only taken on tanks with active exhausters; high heat load tanks A-104/105, C-105/106 (effective July 1, 1993, C-105 is no longer a high heat load tank), SX-107, 108, 109, 110, 111, 112, and 114. The exhausters on A-104/105 have been down since October 1991; no readings are being taken. The frequency of psychrometric readings in SSTs are determined by the Cognizant Engineers for the applicable tank farms on an "as needed" basis, with the exception of Tanks C-105/106. Hanford Federal Facility Agreement and Consent Order, Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy, 1992 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105/106 on a monthly frequency. Tanks C-105/106 psychrometric readings are in compliance through July 1993.
3. In-tank photographs are requested on an "as needed" basis. No in-tank photographs were taken between 1991 and 1993.
4. Two tanks are on both category lists (C-106 and SX-109). In July 1993, C-105 was removed from the High Heat Load list and BX-110, BX-111, BY-101 and T-101 were removed from the ferrocyanide Watch List; these tanks continue to be monitored weekly. Temperature spikes occurred in BX-110 in July 1993. These erratic temperatures are being investigated.
5. Temperature readings may be regulated by OSD, -357, or POP. Additionally, high heat load tanks are regulated by OSR/SAR. Thermocouples in the nine tanks designated O/S-O/C are out of service; there are either no thermocouple trees in these tanks, or trees have been cut off, covered over, or are otherwise unable to function. The OSD does not require readings or repair of out-of service thermocouples for the 97 low heat load (<40,000 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 were taken in July 1993; a total of 26 tanks are O/C because either no attempt to obtain the temperature was made, or a reading could not be obtained.
6. "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, (the "Widen Amendment") requires continuous pressure monitoring and temperature monitoring in Watch List tanks. WHC-EP-0422 REV 1, "A Plan to Implement Remediation of Waste Tank Safety Issues at the Hanford Site," December 1991, addresses these monitoring issues. A status report on resolution of Waste Tank Safety Issues at the Hanford Site is being prepared and is expected to be issued in August 1993.
7. Continuous Air Monitoring (CAM) compliance and Radiation Area Monitoring Panel (RAMP) compliance are not addressed in this table.
8. Double-shell tank farm SY has the only tanks with continuous vapor/flamable gas monitoring; not addressed in this table.
9. S-109 is O/S but will become O/C on 8/2/93. 151-AZ catch tank - using Zip cord reading.

**TABLE A-8. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS
28 TANKS (Sheet 1 of 2)**

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 (2)
 In-tank Photographs (3)
 Pressure Monitoring (6)
 CAM/RAMP Monitoring (7)
 Vapor Monitoring (8)

LEGEND:

(Shaded)	= In compliance with all applicable documentation
O/C	= Out of compliance with documentation
-357	= WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria"
M.T.	= Manual Tape
FIC	= Food Instrument Company
OSR/SAR	= Operations Safety Requirements/Safety Analysis Report WHC-SD-WM-SAR-018, Rev 1, 5/88 WHC-SD-HS-SAR-010, Rev 1, 6/83 (Aging Waste)
OSD	= Operations Safety Doc., OSD-T-151-0007, Rev H-5, 1/92
N/A	= Not Applicable (i.e., no M.T., FIC installed)
O/S	= Out of Service
W.F.	= Weight Factor
Rad.	= Radiation

Information as of 7/31/93

Tank Number	Watch List	Temperature Readings (4) (OSD)	Surface Level Readings (1) (-357, OSR/SAR)		Radiation Readings		
					Leak Detection Pits (5) (-357, OSR/SAR)		Annulus (-357)
			M.T.	FIC	W.F.	Rad.	
AN-101			N/A				
AN-102			N/A			O/C	
AN-103	X		N/A				
AN-104	X		N/A			O/C	
AN-105	X		N/A				
AN-106			N/A				
AN-107			N/A				
AP-101						O/C	
AP-102				O/S		O/C	
AP-103						O/C	
AP-104			O/S			O/C	
AP-105						O/C	
AP-106						O/C	
AP-107						O/C	
AP-108						O/C	
AW-101	X			O/S			
AW-102				O/S			
AW-103				O/S			
AW-104							
AW-105				O/S			
AW-106							
AY-101				O/S			O/C
AY-102						O/C	O/C
AZ-101				O/S		O/C (8)	
AZ-102				O/S			
SY-101	X						
SY-102							
SY-103	X			O/S			
Totals: 28 tanks	6 Watch List Tanks	O/C: 0	O/C: 0	O/C: 0	O/C: 0	O/C: 12 tanks	O/C: 2 tanks

See footnotes next page:

TABLE A-8. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS
28 TANKS (Sheet 2 of 2)

Footnotes:

1. All DSTs have both manual tape and FIC, with the exception of the AN Tank Farm which has only FICs. The manual tape is used when the FIC is out of service. O/C will be shown when no readings are obtained.
2. Psychrometric readings are only taken on tanks with active exhausters; all DSTs have active exhausters. The frequency of psychrometric readings in DSTs are determined by the Cognizant Engineers for the applicable tank farms on an "as needed" basis. Currently, monthly readings are being taken on the SY-101 annulus exhaust, SY-102 tank and annulus exhaust, and SY-103 tank and annulus exhaust. SY-101 tank exhaust readings are not being taken until a port on the tank exhaust header becomes available for exhauster readings. No other psychrometric readings are currently being taken monthly.
3. In-tank photographs are requested on an "as needed" basis. Last in-tank photographs in DSTs were taken in April 1989.
4. OSD specifies DST temperature limits, gradients, etc. Tank SY-101 temperatures are obtained shiftwise with increased readings taken prior to and following gas venting.
5. Failure of both lead detection systems requires repair of at least one system within 5 working days. Failure of one system only, repair must be within 10 workdays. Per -357. If repair of out-of-service system exceeds these timeframes, all systems are O/C. Out-of-service systems which have not exceeded these timeframes will be shown as O/S.
6. "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, (the "Widen Amendment") requires continuous pressure monitoring and temperature monitoring in Watch List tanks. WHC-EP-0422 REV 1, "A Plan to Implement Remediation of Waste Tank Safety Issues at the Hanford Site," December 1991, addresses these monitoring issues. A status report on resolution of Waste Tank Safety Issues at the Hanford Site is being prepared and is expected to be issued in August 1993.
7. Continuous Air Monitoring (CAM) compliance and Radiation Area Monitoring Panel (RAMP) compliance are not addressed in this table.
8. Double-shell tank farm SY has the only tanks with continuous vapor/flammable gas monitoring; not addressed in this table.
9. Although data are being received for AZ-101, these are considered questionable.

TABLE A-9. AUTOMATIC FOOD INSTRUMENT CORPORATION (FIC) GAUGES OUT OF SERVICE

July 31, 1993

Tank No.	SST/DST	Date of Last Automatic FIC Reading	Reading Status	Comments	Required Monitoring Frequency(-357)
BX-107	SST	12/30/92	No reading taken since 04/19/93	Out of compliance as of 04/26/93	Weekly
C-107	SST	06/14/93	No reading taken since 06/14/93	Out of compliance as of 06/21/93	Weekly
S-109	SST	07/26/93	No reading taken since 07/26/93	In Compliance	Weekly
S-111	SST	07/19/93	No reading taken since 07/19/93	Out of compliance as of 07/20/93	Daily
SX-106	SST	07/19/93	No reading taken since 07/19/93	Out of compliance as of 07/20/93	Daily
T-102	SST	06/07/93	No reading taken since 06/07/93	Out of compliance as of 06/07/93	Quarterly
T-111	SST	01/12/93	No reading taken since 03/29/93	Out of compliance as of 04/07/93	Quarterly
U-109	SST	07/11/93	No reading taken since 07/11/93	Out of compliance as of 07/12/93	Daily
B-Farm	SST	07/06/93	Taking manual FIC readings	In compliance	Quarterly
BY-109	SST	07/17/93	Taking manual FIC readings	In compliance	Weekly
T-Substation	-	05/28/93	Taking manual FIC readings	In compliance	W/M/Q
C-105	SST	06/09/93	Taking manual FIC readings	In compliance	Daily
SY-101	DST	08/23/91	Taking manual FIC readings	In compliance	Daily
T-103	SST	11/15/91	Taking manual FIC readings	In compliance	Quarterly
T-103	SST	03/31/93	Taking manual FIC readings	In compliance	Quarterly
U-105	SST	11/17/92	Taking manual FIC readings	In compliance	Weekly
AP-102	DST	01/27/93	Taking manual tape readings	In compliance	Daily
AW-101	DST	10/23/92	Taking manual tape readings	In compliance	Daily
AW-102	DST	06/16/93	Taking manual tape readings	In compliance	Daily
AW-103	DST	03/21/92	Taking manual tape readings	In compliance	Daily
AW-105	DST	06/18/93	Taking manual tape readings	In compliance	Daily
AY-101	DST	08/31/90	Taking manual tape readings	In compliance	Daily
AZ-101	DST	02/02/90	Taking manual tape readings	In compliance	Daily
AZ-102	DST	02/15/90	Taking manual tape readings	In compliance	Daily
SY-103	DST	07/05/93	Taking manual tape readings	In compliance	Daily
T-101	SST	12/02/91	Taking manual tape readings	In compliance	Daily
Catch Tanks					
A-302-A		04/16/91	Taking manual FIC reading	In compliance	Daily
151-AZ		07/29/93	Taking Zip Cord reading	In compliance	Shift
U-301-B		03/23/93	No reading taken since 04/29/93	Out of compliance as of 04/30/93	Daily
Frequency reading requirements: Daily - Must be taken by 2 pm each day Weekly - Must be taken by 2 pm each Monday Quarterly - Must be taken by 2 pm on the seventh day of each quarter				LEGEND SST = Single-Shell Tank DST = Double-Shell Tank -357 = WHC-SD-WM-TI-357, Waste Storage Tank Status and Leak Detection Criteria	

This page is intentionally left blank

APPENDIX B

**DOUBLE SHELL TANK WASTE TYPE
AND SPACE ALLOCATION**

WMC-EP-0182-64

This page intentionally left blank

TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION
JULY 1993

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE		SPACE DESIGNATED FOR SPECIFIC USE	
Complexant Concentrate (102-AN, 107-AN, 101-AY, 101-SY, 103-SY)	4.94 Mgal	Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Concentrate Phosphate (102-AP, 106-AN)	1.13 Mgal	Segregated Tank Space (105-AP, 101-AY, 102-AN, 107-AN, 103-AW)	1.03 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	5.11 Mgal	Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY, 101-AW)	0.68 Mgal
Neutralized Current Acid Waste (101-AZ, 102-AZ)	1.22 Mgal	Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	1.23 Mgal
Dilute Waste (1) (101-AN, 101-AP, 103-AP, 106-AP, 107-AP, 108-AP, 102-AW, 103-AW, 104-AW, 105-AW, 106-AW, 101-AY, 102-AY, 101-AZ, 102-AZ, 102-SY, 102-AP, 104-AP)	12.01 Mgal	Miscellaneous Head Space	0.17 Mgal
NCR and PFP Settled Solids (103-AW, 105-AW, 102-SY)	1.01 Mgal		5.39 Mgal
Total Inventory = 25.42 Mgal		TOTAL DOUBLE-SHELL TANK SPACE	
		24 Tanks at 1140 Kgal	27.36 Mgal
		4 Tanks at 980 Kgal	3.92 Mgal
			31.28 Mgal
		Total Available Space	31.28 Mgal
		Double-Shell Tank Inventory	25.42 Mgal
		Space Designated for Specific Use	5.39 Mgal
		Remaining Unallocated Space	0.47 Mgal

(1) Easily reduced in volume by Evaporator/LERF

(2) Reduced by Saltwell Liquid pumping, Mini Run and PFP Operations

(3) 241-101-AY: A minimum liquid level is set to provide extra protection against any bottom uplifting of the tank's steel liner. WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria," specifies 64 in. as the minimum surface level measurement when the annulus system is in operation, and 18 in. if the annulus ventilation system is shut down. See also OSD-T-151-0007, "Unclassified Operation Specifications for the 241 AN, 241AP, 241AW, 241AY and 241SY Tank Farms." Because of space availability, waste is stored in 102-AY, the aging waste spare tank. In case of a leak, the contents of 102-AY will be distributed to any other DST(s) having available space.

Note: Net change in DSTs since last month: 22 Kgal.

WVPTOT

Note: Graphic does not Depict Waste Receipts or Depletions to Specific Use Tank Space

FIGURE B-1. CURRENT STATUS AND CONTINGENCY SPACE FOR THE 242-A EVAPORATOR RESTART

NOTE: THIS GRAPHIC DEPICTS "USABLE SPACE" DEPLETION AND NOT THE TOTAL RECEIPTS TO DSTs.

WVPFACIL

FIGURE B-2. TOTAL AVAILABLE USABLE TANK SPACE

100 K GALLONS

FIGURE B-3. PRIORITY SPACE AVAILABILITY AND USAGE

Figure B-4. Comparison of Monthly Average Waste Generation to Management Limit by Facility

WVAVE

FIGURE B-5. PUREX MONTHLY WASTE GENERATIONS

FIGURE B-6. TANK FARM MONTHLY WASTE GENERATIONS

FIGURE B-7. B PLANT MONTHLY WASTE GENERATIONS

FIGURE B-8. T PLANT MONTHLY WASTE GENERATIONS

FIGURE B-9. S PLANT MONTHLY WASTE GENERATIONS

FIGURE B-10. 300 AREA MONTHLY WASTE GENERATIONS

Table B-2. Double Shell Tank Waste Inventory for July 31, 1993 (page 1 of 2)

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
101AW=	1151	84	DSSF	-11
102AW=	886	3	DN	254
103AW=	645	487	PD/DN	495
104AW=	1124	267	DN	16
105AW=	1002	388	PD/DN	138
106AW=	1074	211	DN	66
101AY=	908	83	DC	72
102AY=	849	32	DN	131
101AZ=	969	35	NCAW	11
102AZ=	960	95	NCAW	20
101AN=	640	0	DN	500
102AN=	1101	89	CC	39
103AN=	951	373	DSS	189
104AN=	1064	264	DSSF	76
105AN=	1129	0	DSSF	11
106AN=	23	17	CP	1117
107AN=	1068	134	CC	72
101SY=	1109	560	CC	31
102SY=	729	133	PT/DN	411
103SY=	755	4	CC	385
101AP=	1061	0	DN	79
102AP=	1107	0	CP	33
103AP=	1133	0	DN	7
104AP=	19	0	DN	1121
105AP=	821	0	DSSF	319
106AP=	1129	0	DN	11
107AP=	1115	0	DN	25
108AP=	902	0	DN	238
TOTAL=	25424		TOTAL	5856

SEGREGATED SPACE	
* 101AW=	-11
103AW=	495
102AP=	33
105AP=	319
* 101SY=	31
* 103SY=	385
101AY=	72
102AN=	39
* 103AN=	189
* 104AN=	76
* 105AN=	11
107AN=	72
TOTAL=	1711

* WATCHLIST TANKS	
PRIORITY SPACE	
102SY=	411
101AN=	500
102AW=	254
106AW=	66
TOTAL=	1231

MISC. HEADSPACE	
101AP=	79
103AP=	7
106AP=	11
107AP=	25
104AW=	16
101AZ=	11
102AZ=	20
TOTAL=	169

USEABLE SPACE	
104AP=	1121
108AP=	238
105AW=	138
102AY=	131
106AN=	1117
TOTAL=	2745
SPARES	-2280
USEABLE	465

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

TOTAL INVENTORY	
06/93 TOTAL	25402
07/93 TOTAL	25424
INCREASE	22

USEABLE SPACE	
06/93 TOTAL	517
07/93 TOTAL	465
DEPLETION	-52

PRIORITY SPACE	
06/93 TOTAL	1245
07/93 TOTAL	1231
DEPLETION	-14

Inventory Calculation by Waste Type:

COMPLEXED CONCENTRATE (CC)	
102AN=	1101 (CC)
107AN=	1068 (CC)
101SY=	1109 (CC & DSS)
103SY=	755 (CC, DSS & SWL)
101AY=	908 (DC)
TOTAL=	4941

NCRW	
103AW=	158 SOLIDS= 487
105AW=	614 SOLIDS= 388
TOTAL=	772 TOTAL= 875

WEST AREA WASTE (DN/PD)	
102SY=	596 SOLIDS= 133
TOTAL=	596 TOTAL= 133

CONC. PHOSPHATE (CP)	
106AN=	23
102AP=	1107
TOTAL=	1130

DILUTE WASTE (DN)	
101AP=	1061
103AP=	1133
106AP=	1129
107AP=	1115
108AP=	902
101AN=	640
102AW=	886
104AW=	1124
106AW=	1074
102AY=	849
104AP=	19
TOTAL=	12004

NCAW (AGING WASTE @ 5M Na)	
101AZ=	791
102AZ=	434
TOTAL=	1225
DN=	704

DSS/DSSF	
105AP=	821
103AN=	951
104AN=	1064
105AN=	1129
101AW=	1151
TOTAL=	5116

GRAND TOTALS	
CC=	4033
DC=	908
NCRW=	875
CP=	1130
NCAW=	1225
DSS/DSS	5116
PPF=	133
DILUTE=	12004
TOTAL=	25424

NOTE: Depletion in "Usable" tank space partially due to Tank 102-AP being moved to "Segregated" space
NOTE: All Values are in Kilogallons.

Table B-2. Double Shell Tank Waste Inventory for July 31, 1993 (page 2 of 2)

TOTAL DOUBLE SHELL TANKS SPACE AVAILABLE AS OF JULY 31, 1993:				5856 KGALS
SEGREGATED TANK SPACE:				
	TANK	WASTE TYPE	AVAILABLE SPACE	
(*) Watch List Tanks	* 101-AW	DSSF	-11 KGALS (#)	
	103-AW	NCRW	495 KGALS	
	102-AP	CP	33 KGALS	
(#) Tank 101-AW shows negative available space because it exceeds the 1140 Kgal for waste volume projections of available space (but does not exceed the operating limit criteria)	105-AP	DSSF	319 KGALS	
	* 101-SY	CC/DSS	31 KGALS	
	* 103-SY	CC/DSS	385 KGALS	
	101-AY	DC	72 KGALS	
	102-AN	CC	39 KGALS	
	* 103-AN	DSS	189 KGALS	
	* 104-AN	DSSF	76 KGALS	
	* 105-AN	DSSF	11 KGALS	
	107-AN	CC	72 KGALS	
TOTAL=			1711 KGALS	
AVAILABLE TANK SPACE=			5856 KGALS	
MINUS SEGREGATED SPACE=			-1711 KGALS	
TOTAL AVAILABLE SPACE AFTER SEGREGATION=			4145 KGALS	
PRIORITY TANK SPACE:				
	TANK	WASTE TYPE	AVAILABLE SPACE	
SWL/PFP	102-SY	DN	411 KGALS	
NON-COMPLEXED SWL RECEIVER	101-AN	DN	500 KGALS	
EVAPORATOR START-UP	102-AW	DN	254 KGALS	
EVAPORATOR START-UP	106-AW	DN	66 KGALS	
TOTAL=			1231 KGALS	
AVAILABLE SPACE AFTER SEGREGATION=			4145 KGALS	
MINUS PRIORITY SPACE=			-1231 KGALS	
TOTAL AVAILABLE SPACE AFTER PRIORITY=			2914 KGALS	
MISCELLANEOUS HEADSPACE:				
	TANK	WASTE TYPE	AVAILABLE SPACE	
	101-AP	DN	79 KGALS	
	103-AP	DN	7 KGALS	
	106-AP	DN	11 KGALS	
	107-AP	DN	25 KGALS	
	104-AW	DN	16 KGALS	
	101-AZ	AW	11 KGALS	
	102-AZ	AW	20 KGALS	
TOTAL=			169 KGALS	
AVAILABLE SPACE AFTER PRIORITY=			2914 KGALS	
MINUS MISCELLANEOUS HEADSPACE=			-169 KGALS	
TOTAL AVAILABLE SPACE AFTER HEADSPACE=			2745 KGALS	
REALISTIC USABLE TANK SPACE:				
	TANK	WASTE TYPE	AVAILABLE SPACE	
	104-AP	DN	1121 KGALS	
	108-AP	DN	238 KGALS	
	105-AW	DN	138 KGALS	
	102-AY	NCRW	131 KGALS	
	106-AN	CP	1117 KGALS	
TOTAL=			2745 KGALS	
TOTAL AVAILABLE SPACE AFTER UNUSABLE DEPLETION=			2745 KGALS	
MINUS SPARE TANK SPACE=			-2280 KGALS	
TOTAL TANK SPACE AVAILABLE AFTER SPARE SPACE=			465 KGALS	

WV7807

APPENDIX C

TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS

This page intentionally left blank

C. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

July 1993

1. TANK STATUS CODES

WASTE TYPE

AGING	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/PN	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)
PT	Plutonium Finishing Plant (PFP) TRU Solids

TANK USE (DOUBLE-SHELL TANKS ONLY)

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

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F	Food Instrument Company (FIC) Automatic Surface Level Gauge
M	Manual Tape Surface Level Gauge
P	Photo Evaluation
S	Sludge Level Measurement Device

3. 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 <i>National Defense Authorization Act for Fiscal Year 1991</i> , November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

WASTE TYPES

Aging Waste (AGING)	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 100 N Area reactor. 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, hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), and iminodiacetate (IDA) being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory.
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 liquors not identified as complexed.
PUREX Decladding (PD/PN)	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.
PFP TRU Solids (PT)	TRU solids fraction from PFP Plant operations.
Drainable Interstitial Liquid (DIL)	Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity.

Supernate	The liquid above the solids in waste storage tanks.
Ferrocyanide	A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[\text{Fe}(\text{CN})_6]^{-4}$.

WASTE STATUS

In-Service Tank	The waste classification of a tank being used, or planned for use, for the storage of liquid (in excess of a minimum supernatant liquid heel) in conjunction with production and/or waste processing.
Out-of-Service Tank	A tank which does not meet the definition of an in-service tank. Before September 1988, these tanks were defined as inactive in this report. [Note: All single-shell tanks (SST) are out of service.]

STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)	A tank which contains less than 50,000 gal of drainable interstitial liquid and less than 5,000 gal of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow must also have been at or below 0.05 gpm before interim stabilization criteria is met.
-------------------------	---

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), in accordance with WHC-SD-WM-SAR-006 REV 2, <i>Single-Shell Tank Isolation Safety Analysis Report</i> , March 1986.

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 <u>new</u> 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	Drywells are vertical boreholes with 6-in. (internal diameter) carbon steel casings positioned radially around SSTs. Periodic monitoring is done by gamma radiation or neutron sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage. These wells range between 50 and 250 ft in depth, and are monitored between the range of 50 to 150 ft. The wells are sealed when not in use. They are called drywells because they do <u>not</u> penetrate to the water table and are therefore usually "dry." The drywell frequency monitoring schedule calls for 105 drywells weekly, 91 biweekly, 41 monthly, 151 quarterly, and 371 annually.
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 are monitored by radiation detection probes. Laterals are 4-in. inside diameter steel pipes located 8 to 10 ft below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms.
Surface Levels	The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or inputted to the Computer Automated Surveillance System (CASS).

- 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 also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually.
- Annulus** The annulus is the space between the inner and outer shells on DSTs. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. Alarms from the annunciators are received by CASS. Continuous Air Monitoring (CAM) alarms are also located in the annulus. 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 constructed of fiberglass or TEFZEL*-reinforced epoxy-polyester resin, sized to extend to within 1 in. of the bottom of the tank steel liner. They are sealed at their bottom ends and have a nominal outside diameter of 3.5 in. 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 58 LOWs (56 are in operation) installed in SSTs that contain or are capable of containing greater than 50,000 gal of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (102-SY and 103-AW Tanks), are constructed of steel and are used for special 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, installed in a riser, or lowered down an existing

*TEFZEL, a trademark of E. I. du Pont de Nemours & Company

bottom of the tank, and the domes. In SSTs, there may be one or more thermocouple trees installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple may be

riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank
Photography

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

4. INVENTORY AND STATUS BY TANK - COLUMN CALCULATIONS (SINGLE-SHELL TANKS)

COLUMN HEADING

Total Waste	Solids Volume plus Supernatant liquid.
Supernatant Liquid	Drainable Liquid Remaining minus Drainable Interstitial. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement.
Drainable Interstitial	Drainable Liquid Remaining minus Supernate. Drainable Interstitial Liquid is calculated based on the saltcake and sludge volumes, using average porosity values or actual data for each tank, when available.
Total Jet Pumped	Cumulative total pumped 1979 to date.
Drainable Liquid Remaining	Supernate plus Drainable Interstitial.
Pumpable Liquid Remaining	Drainable Liquid Remaining less undrainable heel volume.
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 may be used to estimate the volume.
Saltcake	Results from crystalization 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 may be used to estimate the saltcake volume.

WHC-EP-0182-64

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 Photo Date	Date of latest in-tank photographs taken.
Change Since Last Monthly Report	Indicates any change made since the previous month. Explanation for the change follows the Inventory and Status by Tank section.

This page intentionally left blank

APPENDIX D

**TANK FARM CONFIGURATION, STATUS, AND
FACILITY CHARTS**

This page intentionally left blank.

D-3

75 ft Diameter Double-Shell Tank
Tank Farms: AN, AP, AW, AY, AZ, SY

* AY and AZ Have a Tank Capacity
of 1,000,000 gal

75 ft Diameter Single-Shell Tank
Tank Farms: A*, AX*, SX

* A and AX have flat bottoms

75 ft Diameter Single-Shell Tank
Tank Farms: BY, S, TX, TY

75 ft Diameter Single-Shell Tank
Tank Farms: B, BX, C, T, U

20 ft Diameter Single-Shell Tank
Tank Farms: B, C, T, U

Figure D-1. High-Level Waste Tank Configuration

Figure D-2. Double-Shell Tank Instrumentation Configuration

Figure D-3. Single-Shell Tank Instrumentation Configuration

This page intentionally left blank

Op's limit 1,140,000 gal. Constructed 1974-78

200 West Tank Farms
Double-Shell Tank Status

Op's limit 1,140,000 gal. Constructed 1980-81

Op's Limit 1,140,000 gal. Constructed 1983-88

Op's limit 1,140,000 gal. Constructed 1978-80

Op's limit 980,000 gal. Constructed 1968-70

Op's limit 980,000 gal. Constructed 1971 & 1977

200 East Tank Farms
Double-Shell Tank Status

Concentrate

Dilute

Dilute Concentrate
Waste

Concentrated Phosphate
Waste

Neutralized Current Acid
Waste (NCAW)

PFP

Sludge

Double-Shell Slurry/Feed

NCFW
Neutralized Cladding
Removal Waste

H = Potential Flammable Gases
(Hydrogen) (WHC-WP-0416)

GF = Grout Feed Tanks

TT = Transfer Tank

XXX = Sludge (in K gal.)

Updated Quarterly 06/30/93

D8T-LVL/S.G.SPENCER/07-93

Figure D-4. Double-Shell Tank Status

1,000,000 gal. tanks Constructed 1954-55

1,000,000 gal. tanks Constructed 1963-64

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

500,000 gal. tanks Constructed 1946-47

750,000 gal. tanks Constructed 1948-49

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

Sludge

Solids

XXX = Total Waste Volume (Solids+Supernatant) (in K gal.)

XXX = Total Solids (in K gal.)

(Drainable Interstitial + Supernatant)

XXX = Sludge (in K gal.)

(Solids Totals Not Shown)

AL = Assumed Leaker

HH = High Heat Tanks

F = Ferrocyanide

(WHC-EP-0009)

O = Organics

H = Potential Flammable Gases

(Hydrogen) (WHC-EP-0009)

IP = Intrusion Prevention

IS = Interim Stabilized

PI = Partially Interim Isolated

Updated Quarterly 06/30/93

SST-ALL/S.G. SPENCER/07-93

Figure D-5. 200E Single-Shell Tank Status

750,000 gal. tanks Constructed 1950-51

1,000,000 gal. tanks Constructed 1953-54

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

750,000 gal. tanks Constructed 1947-48

750,000 gal. tanks Constructed 1951-52

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

Legend:

Shade **Outline**

XXX = Total Waste Volume (Solids+Supernatant) (in K gal.)
 XXX = Total Liquids (in K gal.)
 [Drainable Interstitial + Supernatant]
 XXX = Sludge (in K gal.)
 (Estimate Totals Not Shown)

AL = Assumed Leaking
 HH = High Heat Tanks
 F = Fermentable
 (WHC-EP-0182)
 O = Organic
 H = Potential Flammable Gases
 (WHC-EP-0182-0183)

IP = Intrusion Prevention
 IS = Interim Stabilized
 PI = Partially Interim Isolated

Updated Quarterly 06/30/93

EST-ALL R.G. SPENCER/07-08

Fig. D-6. 200W Single-Shell Tank Status

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

Watch List Tanks	
☐	Ferrocyanide
☒	H2/Flammable gasses (SX-109 has potential only-other tanks vent thru it)
☒	Organics
☒	High Heat - C-106 only on Watch List (cooling water added)

Status as of June 30, 1993 - Updated Quarterly
 Issued by WHC/TWRS/SSST

29303121.1C

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

All Tanks 75 Foot Diameter
(Except 55,000 gal 20 foot dia.)

Single-Shell

Double-Shell

Interim
Stabilized

Sound

DCRT = Double Contained
Receiver Tank
NHW = Neutralized
High Level Waste
PAW = PUREX Acid Waste

Issued by: WHC/SSTT

Isolated
P= Partial
Interim
IP= Intrusion
Prevention
Completed

Tank
Number

Radiation Monitoring
Dry Well - Approx Location
(● = Active ○ = Inactive)

BY-Tank Farm
1948-49

12 @ 758,000 gal

BX-Tank Farm
1946-47

12 @ 530,000 gal

B-Tank Farm
1943-44

12 @ 530,000 gal
4 @ 55,000 gal

C-Tank Farm
1943-44

12 @ 530,000 gal
4 @ 55,000 gal

AN-Tank Farm
1980-81

7 @ 1,160,000 gal

Watch List Tanks

- Ferrocyanide
- H₂/Flammable gasses (SX-109 has potential only-other tanks vent thru it)
- Organics
- High Heat - C-106 only on Watch List (cooling water added)

Status as of June 30, 1993 - Updated Quarterly
Issued by WHC/TWRS/SSTT

29308121.2C

APPENDIX E

**MONTHLY SUMMARY
TANK USE SUMMARY
INVENTORY SUMMARY BY TANK FARM
INVENTORY AND STATUS BY TANK**

This page intentionally left blank.

TABLE E-1. MONTHLY SUMMARY

TANK STATUS

July 1993

	200 <u>EAST AREA</u>	200 <u>WEST AREA</u>	<u>TOTAL</u>
IN SERVICE	25	3	28 (2)
OUT OF SERVICE	66	83	149
SOUND	59	51	110
ASSUMED LEAKER	32	35	67
INTERIM STABILIZED	51	55	106 (1)
ISOLATED			
PARTIAL INTERIM	21	30	51
INTRUSION PREVENTION COMPLETED	45	53	98

WASTE VOLUMES (Kgallons)

	200 <u>EAST AREA</u>	200 <u>WEST AREA</u>	<u>TOTAL</u>	<u>SST TANKS</u>	<u>DST TANKS</u>	<u>TOTAL</u>
<u>SUPERNATANT</u>						
AGING Aging waste	1799	0	1799	0	1799	1799
CC Complexant concentrate waste	1949	197	2146	3	2143	2146
CP Concentrated phosphate waste	6	0	6	0	6	6
DC Dilute complexed waste	825	1	826	1	825	826
DN Dilute non-complexed waste	10420	0	10420	0	10420	10420
DN/PD Dilute non-complex/PUREX TRU solids	987	0	987	0	987	987
DN/PT Dilute non-complex/PFP TRU solids	0	658	658	0	658	658
DSSF Double-shell slurry feed	3839	48	3887	56	3831	3887
NCPLX Non-complexed waste	234	281	515	515	0	515
TOTAL SUPERNATANT	20059	1185	21244	575	20669	21244
<u>SOLIDS</u>						
Double-shell slurry	937	1103	2040	0	2040	2040
Sludge	8206	6213	14419	12464	1955	14419
Saltcake	6577	17352	23929	23169	760	23929
TOTAL SOLIDS	15720	24668	40388	35633	4755	40388
TOTAL WASTE	35779	25853	61632	36208	25424	61632
AVAILABLE SPACE IN TANKS	5040	827	5867	0	5867 (2)	5867
DRAINABLE INTERSTITIAL	2253	4516	6769	6330	439	6769
DRAINABLE LIQUID REMAINING	22307	5701	28008	6900	21108	28008

(1) Includes tanks that do not meet current established supernatant and interstitial liquid stabilization criteria, B-104, B-107, B-110, B-111, BX-110, T-102, T-112, and U-110.

(2) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, 103-AN, 104-AN, 105-AN, 101-AW, 101-SY, and 103-SY.

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

TABLE E-2. TANK USE SUMMARY

July 1993

TANK FARMS	IN SERVICE	OUT OF SERVICE	SOUND	ASSUMED LEAKER	ISOLATED TANKS PARTIAL INTERIM	INTRUSION PREVENTION	INTERIM STABILIZED TANKS
EAST							
A	0	6	3	3	2	4	5
AN	7 (2)	0	7	0	0	0	0
AP	8	0	8	0	0	0	0
AW	6 (2)	0	6	0	0	0	0
AX	0	4	2	2	1	3	3
AY	2	0	2	0	0	0	0
AZ	2	0	2	0	0	0	0
B	0	16	6	10	0	16	16 (1)
BX	0	12	7	5	6	6	10 (1)
BY	0	12	7	5	5	7	7
C	0	16	9	7	7	9	10
Total	25	66	59	32	21	45	51
WEST							
S	0	12	11	1	10	2	2
SX	0	15	5	10	6	9	9
SY	3 (2)	0	3	0	0	0	0
T	0	16	9	7	5	11	12 (1)
TX	0	18	10	8	0	18	18
TY	0	6	1	5	0	6	6
U	0	16	12	4	9	7	8 (1)
Total	3	83	51	35	30	53	55
TOTAL	28	149	110	67	51	98	106

(1) Includes tanks that do not meet current established supernatant and interstitial liquid stabilization criteria (104, 107, 110, and 111-B, 110-BX, 102 and 112-T, and 110-U).

(2) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently in service (103, 104, 105-AN, 101-AW, 101 and 103-SY).

TABLE E-3. INVENTORY SUMMARY BY TANK FARM

WASTE VOLUMES (Kgallons)

July 1993

SUPERNATANT LIQUID VOLUMES

SOLIDS VOLUME

TANK FARM	TOTAL WASTE	AVAIL SPACE	AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	DSS	SLUDGE	CAKE	TOTAL
EAST																
A	1536	0	0	0	0	0	0	0	0	8	0	8	0	556	972	1528
AN	5976	2004	0	1946	6	0	640	0	0	1943	0	4535	937	504	0	1441
AP	7287	1833	0	0	0	0	6466	0	0	821	0	7287	0	0	0	0
AW	5882	969	0	0	0	0	2497	987	0	1067	0	4551	0	1135	196	1331
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1757	203	0	0	0	825	817	0	0	0	0	1642	0	115	0	115
AZ	1929	31	1799	0	0	0	0	0	0	0	0	1799	0	130	0	130
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1559	0	0	0	0	0	0	0	0	0	50	50	0	1354	155	1509
BY	4744	0	0	0	0	0	0	0	0	0	0	0	0	719	4025	4744
C	2146	0	0	0	0	0	0	0	0	0	169	169	0	1977	0	1977
Total	35779	5040	1799	1949	6	825	10420	987	0	3839	234	20059	937	8206	6577	15720
WEST																
S	5680	0	0	0	0	0	0	0	0	17	29	46	0	1171	4463	5634
SX	4453	0	0	0	0	1	0	0	0	0	62	63	0	1532	2858	4390
SY	2593	827	0	197	0	0	0	0	658	0	0	855	1103	71	564	1738
T	2034	0	0	0	0	0	0	0	0	0	45	45	0	1989	0	1989
TX	6905	0	0	0	0	0	0	0	0	0	5	5	0	241	6659	6900
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	25853	827	0	197	0	1	0	0	658	48	281	1185	1103	6213	17352	24668
TOTAL	61632	5867	1799	2146	6	826	10420	987	658	3887	515	21244	2040	14419	23929	40388

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

TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
July 1993

TANK STATUS				LIQUID VOLUME								SOLIDS VOLUME			VOLUME DETERMINATION					CHANGE SINCE LAST MONTHLY REPORT
TANK	WASTE MATL	TANK INTEGRITY	TANK USE	EQUIVA- LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLDG (Kgallons)	CAKE VOL MTHD	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	
+++++ AN FARM STATUS +++++																				
AN-101 DN	SOUND		DRCVR	232.7	640	500	640	0	0.0	0.0	640	640	0	0	0	FM	S	08/22/89	0/ 0/ 0	
AN-102 CC	SOUND		CWHT	400.4	1101	39	1012	3	0.0	0.0	1015	1012	0	89	0	FM	S	08/22/89	0/ 0/ 0	
AN-103 DSS	SOUND		CWHT	345.8	951	189	14	0	0.0	0.0	14	14	937	0	0	FM	S	08/22/89	10/29/87	
AN-104 DSSF	SOUND		CWHT	386.9	1064	76	800	25	0.0	0.0	825	803	0	264	0	FM	S	08/22/89	08/19/88	
AN-105 DSSF	SOUND		CWHT	410.5	1129	11	1129	0	0.0	0.0	1129	1129	0	0	0	FM	S	10/22/84	01/26/88	
AN-106 CP	SOUND		CWHT	8.4	23	1117	6	0	0.0	0.0	6	6	0	17	0	FM	S	08/22/89	0/ 0/ 0	
AN-107 CC	SOUND		CWHT	388.4	1068	72	934	9	0.0	0.0	943	934	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	5976	2004	4535	37	0.0	0.0	4572	4538	937	504	0					
+++++ AP FARM STATUS +++++																				
AP-101 DN	SOUND		DRCVR	385.8	1061	79	1061	0	0.0	0.0	1061	1061	0	0	0	FM	S	05/01/89	0/ 0/ 0	
AP-102 DN	SOUND		GRTFD	402.5	1107	33	1107	0	0.0	0.0	1107	1107	0	0	0	FM	S	07/11/89	0/ 0/ 0	
AP-103 DN	SOUND		DRCVR	412.0	1133	7	1133	0	0.0	0.0	1133	1133	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-104 DN	SOUND		GRTFD	6.9	19	1121	19	0	0.0	0.0	19	19	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-105 DSSF	SOUND		CWHT	298.5	821	319	821	0	0.0	0.0	821	821	0	0	0	FM	S	02/02/89	0/ 0/ 0	
AP-106 DN	SOUND		DRCVR	410.5	1129	11	1129	0	0.0	0.0	1129	1129	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-107 DN	SOUND		DRCVR	405.5	1115	25	1115	0	0.0	0.0	1115	1115	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-108 DN	SOUND		DRCVR	328.0	902	238	902	0	0.0	0.0	902	902	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	7287	1833	7287	0	0.0	0.0	7287	7287	0	0	0					

TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
July 1993

TANK STATUS				LIQUID VOLUME									SOLIDS VOLUME		VOLUME DETERMINATION						
TANK	WASTE MATL	TANK INTEGRITY	TANK USE	EQUIVA-	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER- NATANT (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLDG	CAKE	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT	
				LENT WASTE INCHES																	
++++++ AW FARM STATUS ++++++																					
AW-101	DSSF	SOUND	CWHT	418.5	1151	0	1067	2	0.0	0.0	1069	1067	0	84	0	FM	S	10/22/84	03/17/88	(1)	
AW-102	DN	SOUND	EVFD	322.2	886	254	885	0	0.0	0.0	885	885	0	1	0	FM	S	02/29/84	02/02/83		
AW-103	DN/PD	SOUND	DRCVR	234.5	645	495	282	37	0.0	0.0	319	297	0	363	0	FM	S	02/01/89	0/ 0/ 0		
AW-104	DN	SOUND	DRCVR	408.7	1124	16	834	49	0.0	0.0	883	861	0	179	111	FM	S	03/05/87	02/02/83		
AW-105	DN/PD	SOUND	DRCVR	364.4	1002	138	705	29	0.0	0.0	734	712	0	297	0	FM	S	03/05/87	0/ 0/ 0		
AW-106	DN	SOUND	SRCVR	390.5	1074	66	778	42	0.0	0.0	820	798	0	211	85	FM	S	01/31/92	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS:	5882	969	4551	159	0.0	0.0	4710	4620	0	1135	196						
++++++ AY FARM STATUS ++++++																					
AY-101	DC	SOUND	DRCVR	330.2	908	72	825	2	0.0	0.0	827	825	0	83	0	FM	S	02/02/87	12/28/82		
AY-101	DN	SOUND	DRCVR	308.7	849	131	817	0	0.0	0.0	817	817	0	32	0	FM	S	02/10/38	04/28/81		
2 DOUBLE-SHELL TANKS				TOTALS:	1757	203	1642	2	0.0	0.0	1644	1642	0	115	0						
++++++ AZ FARM STATUS ++++++																					
AZ-101	AGING	SOUND	CWHT	352.4	969	11	934	0	0.0	0.0	934	934	0	35	0	FM	S	09/30/90	08/18/83		
AZ-102	AGING	SOUND	DRCVR	349.1	960	20	865	4	0.0	0.0	869	865	0	95	0	FM	S	06/04/92	12/24/84		
2 DOUBLE-SHELL TANKS				TOTALS:	1929	31	1799	4	0.0	0.0	1803	1799	0	130	0						

TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
July 1993

TANK STATUS				LIQUID VOLUME								SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRITY	TANK USE	EQUIVA-	TOTAL	AVAIL	SUPER-	DRAIN-				DRAIN-	PUMP-						CHANGE
				LENT	WASTE	SPACE	NATANT	ABLE	INTER-	PUMPED	TOTAL	ABLE	ABLE						SINCE
				INCHES	(Kgal)	(Kgal)	(Kgal)	(Kgal)	STIT.	THIS	PUMPED	LIQUID	LIQUID						
										MONTH		REMAIN	REMAIN	DSS	SLDG	CAKE	SOL	SOLIDS	LAST
												(Kgal)	(Kgal)	(Kgallons)	MTHD	MTHD	MTHD	VOLUME	PHOTO
																			DATE
																			MONTHLY
																			REPORT
SY-101 CC				403.3	1109	31	19	237	0.0	0.0	256	250	530	0	560	FM	S	01/31/92	04/12/89
SY-102 DN/PT				265.1	729	411	658	0	0.0	0.0	658	658	0	71	0	FM	S	05/12/87	04/29/81
SY-103 CC				274.5	755	385	178	0	0.0	0.0	178	178	573	0	4	FM	S	10/22/84	10/01/85
3 DOUBLE-SHELL TANKS				TOTALS:	2593	827	855	237	0.0	0.0	1092	1086	1103	71	564				
GRAND TOTAL					25424	5867	20669	439				21108	20972	2040	1955	760			

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

Tank Farms	Available Space	Document SD-WM-TI-357*		Document
	Calculations Used			OSD-T-151-00007**
	In This Document	Operating Limit	Tank Capacity	Specification Limit
	(Most Conservative)			
AN, AP, AW, SY	1,140,000 gal (414.5 in.)	1,144,000 gal (416 in.)	1,160,000 gal (421.8 in.)	1,160,500 gal (422 in.)
AY, AZ (Aging Waste)	980,000 gal (356.4 in.)	990,000 gal (360 in.)	1,000,000 gal (363.6 in.)	1,001,000 gal (364 in.)

* WMC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria."

**WMC-OSD-T-151-00007, "Operating Specifications for 241-AN, AP, AW, AY, AZ, & SY Tank Farms."

- (1) Tank AW-101: Although the total waste exceeds the 1140 Kgal specified for waste volume projections of available space, it does not exceed the operating limit criteria.

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
July 1993

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT 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)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	LAST PHOTO DATE	CHG SINCE LAST MONTHLY REPORT
																SOURCE SEE FOOTNOTE		
+++++ A FARM STATUS +++++																		
A-101	DSSF	SOUND	/PI	953	0	413	0.0	0.0	413	390	3	950	P	F	11/21/80		08/21/85	
A-102	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	(1)	07/20/89	
A-103	DSSF	ASMD LKR	IS/IP	370	4	13	0.0	111.0	12	0	366	0	-	FP	06/03/88	(1)	12/28/88	
A-104	NCPLX	ASMD LKR	IS/IP	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78		06/25/86	
A-105	NCPLX	ASMD LKR	IS/IP	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	(1)	08/20/86	
A-106	CP	SOUND	IS/IP	125	0	7	0.0	0.0	7	0	125	0	P	M	09/07/82		08/17/86	
6 SINGLE-SHELL TANKS TOTALS				1536	8	439	0.0	150.5	442	390	556	972						
+++++ AX FARM STATUS +++++																		
AX-101	DSSF	SOUND	/PI	748	0	320	0.0	0.0	320	298	3	745	P	F	05/06/82		08/18/87	
AX-102	CC	ASMD LKR	IS/IP	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88		06/05/89	
AX-103	CC	SOUND	IS/IP	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87		08/13/87	
AX-104	NCPLX	ASMD LKR	IS/IP	7	0	0	0.0	0.0	0	0	7	0	P	M	04/28/82		08/18/87	
4 SINGLE-SHELL TANKS TOTALS:				906	3	370	0.0	13.0	373	304	19	884						

E-9

MHC-EP-0182-64

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
July 1993

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION							
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT 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)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT		
																			+++++ B FARM STATUS +++++	
B-101	NCPLX	ASMD LKR	IS/IP	113	0	6	0.0	0.0	6	0	113	0	P	F	04/28/82		05/19/83			
B-102	NCPLX	SOUND	IS/IP	32	4	0	0.0	0.0	4	0	18	10	P	F	08/22/85	(1)	08/22/85			
B-103	NCPLX	ASMD LKR	IS/IP	59	0	0	0.0	0.0	0	0	59	0	F	F	02/28/85	(1)	10/13/88			
B-104	NCPLX	SOUND	IS/IP	371	1	46	0.0	0.0	47	40	301	69	M	M	06/30/85	(1)	10/13/88			
B-105	NCPLX	ASMD LKR	IS/IP	306	0	23	0.0	0.0	23	0	40	266	P	MP	12/27/84	(1)	05/19/88			
B-106	NCPLX	SOUND	IS/IP	117	1	6	0.0	0.0	7	0	116	0	F	F	03/31/85	(1)	02/28/85			
B-107	NCPLX	ASMD LKR	IS/IP	165	1	12	0.0	0.0	13	7	164	0	M	M	03/31/85	(1)	02/28/85			
B-108	NCPLX	SOUND	IS/IP	94	0	4	0.0	0.0	4	0	94	0	F	F	05/31/85	(1)	05/10/85			
B-109	NCPLX	SOUND	IS/IP	127	0	8	0.0	0.0	8	0	127	0	M	M	04/08/85	(1)	04/02/85			
B-110	NCPLX	ASMD LKR	IS/IP	246	1	22	0.0	0.0	23	17	245	0	MP	MP	02/28/85	(1)	03/17/88			
B-111	NCPLX	ASMD LKR	IS/IP	237	1	21	0.0	0.0	22	16	236	0	F	F	06/28/85	(1)	06/26/85			
B-112	NCPLX	ASMD LKR	IS/IP	33	3	0	0.0	0.0	3	0	30	0	F	F	05/31/85	(1)	05/29/85			
B-201	NCPLX	ASMD LKR	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	M	04/28/82		11/12/86			
B-202	NCPLX	SOUND	IS/IP	27	0	3	0.0	0.0	3	0	27	0	P	M	05/31/85	(1)	05/29/85			
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	0	50	0	PM	PM	05/31/84	(1)	11/13/86			
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	0	49	0	P	M	05/31/84	(1)	10/21/87			
16 SINGLE-SHELL TANKS				TOTALS	2057	15	164	0.0	0.0	179	80	1697	345							

E-10

MHC-EP-0182-64

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
July 1993

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT 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)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
+++++ BX FARM STATUS +++++																		
BX-101	NCPLX	ASMD LKR	IS/IP	43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82		11/24/88	
BX-102	NCPLX	ASMD LKR	IS/IP	96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82		09/18/85	
BX-103	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	P	F	11/29/83		10/31/86	
BX-104	NCPLX	SOUND	IS/IP	99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	(1)	09/21/89	
BX-105	NCPLX	SOUND	IS/IP	51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	(1)	10/23/86	
BX-106	NCPLX	SOUND	/PI	46	15	0	0.0	0.0	15	15	31	0	MP	PS	04/28/82		05/19/88	
BX-107	NCPLX	SOUND	IS/PI	345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	(2)	09/11/90	
BX-108	NCPLX	ASMD LKR	IS/IP	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	(1)	10/23/86	
BX-109	NCPLX	SOUND	IS/PI	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	(2)	09/11/90	
BX-110	NCPLX	ASMD LKR	IS/PI	199	1	15	0.0	0.0	16	10	189	9	MP	M	08/22/85	(1)	07/31/85	
BX-111	NCPLX	ASMD LKR	/PI	230	19	50	0.0	0.0	69	46	68	143	M	M	07/26/77		07/16/93	**
BX-112	NCPLX	SOUND	IS/PI	165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	(2)	09/11/90	
12 SINGLE-SHELL TANKS TOTALS:				1559	50	155	0.0	67.8	205	135	1354	155						
+++++ BY FARM STATUS +++++																		
BY-101	NCPLX	SOUND	IS/IP	387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84		09/19/89	
BY-102	NCPLX	SOUND	/PI	341	0	41	0.0	123.3	41	22	0	341	MP	M	08/30/91	(2)	09/11/87	
BY-103	NCPLX	ASMD LKR	/PI	400	0	160	0.0	78.5	160	137	5	395	MP	M	04/03/90	(2)	09/07/89	
BY-104	NCPLX	SOUND	IS/IP	406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82		04/27/83	
BY-105	NCPLX	ASMD LKR	/PI	503	0	192	0.0	0.0	192	169	44	459	P	MP	04/28/82		07/11/86	
BY-106	NCPLX	ASMD LKR	/PI	642	0	235	0.0	0.0	235	213	95	547	P	MP	04/28/82		11/04/82	
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82		10/15/86	

E-11

WHC-EP-0182-64

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
July 1993

TANK STATUS			LIQUID VOLUME								SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT 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)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	CHG	
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE	LAST MONTHLY REPORT
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82		10/15/86	
BY-109	NCPLX	SOUND	/PI	423	0	78	0.0	93.5	78	57	83	340	F	PS	08/30/91	(2)	10/15/86	
BY-110	NCPLX	SOUND	IS/IP	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79		07/26/84	
BY-111	NCPLX	SOUND	IS/IP	459	0	0	0.0	313.2	0	0	21	438	P	M	04/28/82		10/31/86	
BY-112	NCPLX	SOUND	IS/IP	291	0	8	0.0	116.4	8	0	5	286	P	M	04/28/82		04/14/88	
12 SINGLE-SHELL TANKS			TOTALS:	4744	0	780	0.0	1387.4	780	598	719	4025						
+++++ C FARM STATUS +++++																		
C-101	NCPLX	ASMD LKR	IS/IP	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83		11/17/87	
C-102	DC	SOUND	/PI	423	0	37	0.0	11.6	37	19	423	0	F	FP	04/28/82		05/18/76	
C-103	NCPLX	SOUND	/PI	195	133	0	0.0	0.0	133	133	62	0	F	S	10/22/90	(2)	07/28/87	
C-104	CC	SOUND	IS/IP	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	(1)	07/25/90	
C-105	NCPLX	SOUND	/PI	150	0	11	0.0	0.0	11	4	150	0	F	S	05/31/85		04/01/88	
C-106	NCPLX	SOUND	/PI	229	32	16	0.0	0.0	48	42	197	0	F	PS	04/28/82		04/05/79	
C-107	DC	SOUND	/PI	275	0	26	0.0	16.3	26	20	275	0	F	S	01/30/92	(2)	00/00/00	
C-108	NCPLX	SOUND	IS/IP	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	(1)	12/05/74	
C-109	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83		01/30/76	
C-110	DC	ASMD LKR	/PI	187	0	7	0.0	8.9	7	5	187	0	F	FMP	03/01/92	(2)	08/12/86	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82		02/25/70	
C-112	NCPLX	SOUND	IS/PI	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	(2)	09/18/90	

E-12

WHC-EP-0182-64

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
July 1993

E-13

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION						
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT 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)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	CHG		
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SINCE LAST MNTHL REPORT	
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82		12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79		12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82		12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82		12/09/86		
16 SINGLE-SHELL TANKS TOTALS:				2146	169	143	0.0	36.8	312	254	1977	0							
+++++ S FARM STATUS +++++																			
S-101	NCPLX	SOUND	/PI	427	12	84	0.0	0.0	96	90	244	171	F	PS	09/16/80		03/18/88		
S-102	DSSF	SOUND	/PI	549	0	230	0.0	0.0	230	208	4	545	P	FP	04/28/82		03/18/88		
S-103	DSSF	SOUND	/PI	248	17	85	0.0	0.0	102	79	10	221	M	S	11/20/80		06/01/89		
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	(1)	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88		04/12/89		
S-106	NCPLX	SOUND	/PI	543	0	185	0.0	99.8	185	162	32	511	P	FP	06/28/82		03/17/89		
S-107	NCPLX	SOUND	/PI	368	6	45	0.0	0.0	51	44	293	69	F	PS	09/25/80		03/12/87		
S-108	NCPLX	SOUND	/PI	604	0	127	0.0	151.6	127	105	4	600	P	MP	04/28/82		03/12/87		
S-109	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75		08/24/84		
S-110	NCPLX	SOUND	/PI	390	0	110	0.0	185.9	110	103	131	259	F	PS	05/14/92		03/12/87		
S-111	NCPLX	SOUND	/PI	596	10	195	0.0	3.3	205	134	139	447	P	FP	04/28/82		08/10/89		
S-112	NCPLX	SOUND	/PI	637	0	134	0.0	125.1	134	112	6	631	P	FP	06/28/82		03/24/87		
12 SINGLE-SHELL TANKS TOTALS:				5680	46	1399	0.0	791.0	1445	1192	1171	4463							

E-13

WHC-EP-0182-64