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Tank Farm Surveillance and Waste Status Summary Report for October 1992

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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

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B. M. Hanlon

Date Published
January 1993

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
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TANK FARM SURVEILLANCE AND WASTE STATUS
SUMMARY REPORT FOR OCTOBER 1992

B. 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.

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

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**TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY
REPORT FOR OCTOBER 1992
SUMMARY**

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

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	67 single-shell	10/92
Interim-Stabilized Tanks ^{b,d}	105 single-shell	09/90
Interim-Isolated Tanks ^e	98 single-shell	09/91

^a All 149 single-shell tanks were removed from service (i.e., no longer authorized to receive waste) as of November 21, 1980.

^b Of the 105 tanks classified as interim stabilized, 58 are listed as assumed leakers.

^c Five double-shell tanks listed as "in service" are currently not receiving waste because of inclusion 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 48 single-shell tanks on Watch Lists, 21 have been Interim Stabilized.

^e Of the 48 single-shell tanks on Watch Lists, 20 have been Interim Isolated.

TANK INVESTIGATIONS

Tank 241-SY-101. The surface level within this tank continues to fluctuate. The surface level increase/decrease phenomena has been observed since 1981, and is attributed to the slow buildup and relatively fast release of gas within the waste. An investigation into solutions to this slurry growth problem is ongoing. Multiple Event Fact Sheets, a Critique Report, Occurrence Reports, Discrepancy Reports, and Unusual Occurrence Reports have been issued. The Food Instrument Company (FIC) increased from 402.80 in. on October 1 to 405.10 in. by October 31, 1992. The manual tape increased from 390.50 to 405.75 inches by October 31, 1992 (new manual tape was installed which is 10-7/8 in. longer than previous manual tape). The radar gauge increased from 399.43 in. on October 1 to 407.51 in. on October 16, and decreased to 400.32 in. on October 17 and increased again to 408.95 in. by October 31, 1992. The surface level measurements for the radar gauge, FIC, and manual tape are different due to the location of the measurement devices, irregular surface, and the different method by which the level is obtained.

Tank 241-SX-103. The level showed erratic increases/decreases from 1981 to March 1983. The level showed a decreasing trend from 247.90 in. in March 1983 to 242.10 in. on February 3, 1992. The FIC was out of service from

February 10 to September 21, 1992. Following FIC repair on September 21, the level was reading 240.00 in. and is currently reading 241.20 in. on October 31, 1992. An evaporation study will be performed by Waste Characterization Analysis to determine if the decrease can be attributed to evaporation. Liquid observation well (LOW) monitoring has been increased from quarterly to every two weeks. In-tank photographs show what appears to be floating solids with some surface liquid. The FIC plummet is in a depression. Drywells are stable.

Tank 241-SX-105. The liquid observation well interstitial liquid level (ILL) showed a 0.1-ft decrease when scanned August 6, 1991. The current scan of October 16, 1992, shows a 0.3-ft decrease which is at the decrease criteria. An evaporation study was to be performed by Waste Characterization Analysis to determine if the decrease could be attributed to evaporation. An evaporation study cannot be performed for tank 105-SX because of the complete solid surface of the tank. At the present time, there is no computer model available for determining evaporation rates for tanks with a 100% solid surface. LOW monitoring has been increased from quarterly to every two weeks. In-tank photographs show a dry cracked, uneven surface. The FIC plummet is suspended over solids.

Potential or Assumed Leaks:

Tank 241-T-101. A surface level decrease of 2.60 in. from the reference baseline of 44.20 in. was noted on September 18, 1992; following maintenance on the 101-T Level Indicator (FIC). Because the FIC had been operating only sporadically since December 1991, and no reliable surface level data was obtained between December 1991 and July 1992, the decrease was assumed to be due to the faulty FIC, and no occurrence reporting action was taken during that time. Drywell scan data was reviewed and is stable. Drywell monitoring frequencies have been increased to weekly. The surface level measurement has remained at 41.50 inches to October 31, 1992. Occurrence Report RL-WHC-TANKFARM-1992-0073 was issued October 1, 1992, and Tank 101-T was declared an assumed leaker on October 4, 1992. Plans are underway to pump this tank.

Potential or Assumed Intrusions:

The following tanks have been reported for potential in-leakage (intrusions) from known/unknown sources.

Tank 241-S-107. A slow increase in the surface level has been observed since May 1987. The surface level measurement increased 1.10 in. in September 1991, when water was added to the tank in order to install a saltwell screen. The reference baseline was adjusted to reflect this water addition. On August 3, 1992, the surface level measurement was 144.50 in., thus exceeding the 2.00-in. increase criteria from the established baseline of 142.40 in. The FIC was reported out of service on August 17, 1992. After the FIC was repaired on September 21, the surface level measurement was 144.20 in., which is within criteria limits. The reading remained at the 144.20-in. level to October 31, 1992. This tank will remain under close surveillance for unexplained surface level increases.

Tank 241-TX-115. The LOW scans revealed an ILL increase over baseline in excess of the established 0.4-ft increase criteria in May 1987. Comparison of past and present in-tank photographs show no significant change in surface

conditions or obvious evidence of intrusion. Environmental Protection Deviation Report #88-08 was issued on May 18, 1988. Event Fact Sheet TF-EFS-80-140 was issued January 9, 1990. The ILL showed an additional increase of 0.4 ft on March 1, 1991. The increase was verified on March 11, 1991. These LOWs are monitored quarterly, alternating every six weeks with the neutron and gamma probes. No further increase of the ILL has been observed since March 1, 1991. The LOW was last scanned with the neutron probe on October 23, 1992.

HIGHLIGHTS

1. Tank 241-SY-101 Gas Venting

Tank 241-SY-101 vented September 3, 1992. A 53-ft pipe, which houses 14 sensors for measuring temperatures inside the tank, was bent severely by the force of the burp. The pipe broke into two pieces as attempts were made to pull it through a narrow, 15-ft access tube. Leaving the thermocouple tree in the tank was unacceptable because it was feared a resulting spark could cause an explosion if the pipe were to strike the light bars used for the in-tank camera or the wall of the tank. The broken thermocouple tree was successfully removed on October 16, 1992, using a modified oil industry technology to seize the pipe from its inside surface. The window of opportunity, the 30 days after hydrogen is vented and risk of explosion is lowest, ended October 4, but was extended on a day-to-day basis to October 10, when the hydrogen pressure raised the level by 3 inches, and the window was closed. The installation of a circulation pump in the tank to stir the sludge and free hydrogen bubbles before they collect in explosive concentrations was postponed until the next venting occurs. (See Item 6, Occurrence Report WHC-TANKFARM-1992-0076 for details).

2. Tank 241-T-101

On October 4, 1992, Tank 101-T was declared an assumed leaker. Total leakage is assumed to be approximately 7500 gal. Plans are underway to pump this tank, pending applicable preparation and documentation. (See Item 6, Occurrence Report WHC-TANKFARM-1992-0073 for details).

3. Tank Monitoring and Control System (TMACS)

The required documentation was completed October 23, 1992, on 14 Ferrocyanide tanks connected to TMACS, and temperatures monitored by this system will begin appearing in the November report. A total of 17 thermocouple trees are being monitored (some tanks have two trees).

4. Criticality Safety Issues

On April 30, 1992, an Unreviewed Safety Question 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 JCO establishes the limitations for all tanks receiving transfers and also excludes any stabilization of single-shell tanks until further evaluations are

completed and approved by DOE-HQ. The resolution of the USQ is scheduled for summer 1993.

5. Saltwell Pumping

Interim stabilization has been delayed because of the criticality safety issues which suspended waste transfers into and between tank farm facilities. The approved JCO excludes any stabilization of single-shell tanks until further evaluations are completed and approved by DOE-HQ. The resolution of the USQ is scheduled for summer 1993.

6. Occurrence Reports

RL-WHC-TANKFARM-1992-0073 (UNUSUAL OCCURRENCE) - LIQUID LEVEL ANOMALY IN TANK 241-T-101.

On September 18, 1992, the liquid level in Tank 101-T was noted to have dropped 2.60 in. from a previously established liquid level of 44.20 in. The level decrease was noted following maintenance on the 101-T Level Indicator (FIC) which has been operating only sporadically since December 1991. No reliable data was obtained between December 2, 1991, and July 6, 1992. The liquid level has remained steady at 41.5 in. since October 4. On October 4, 1992, the tank was declared to be an assumed leaker. Total leakage to date is estimated to be approximately 7500 gal.

Tank 241-T-101 was placed into service in 1944, and removed from service on November 21, 1980. The tank contains approximately 35 Kgal drainable liquid and 103 Kgal sludge. A review of the level history was initiated to identify any trends. The most recent in-tank photographs, taken July 1984, were reviewed as was the drywell monitoring. Previous and current drywell scans are stable, and give no indication of a tank leak. The drywell scan frequency has been increased with the last scan having been performed on October 14, 1992. The in-tank photographs showed a continuous liquid level surface with no solids exposed. A new set of in-tank photographs will be obtained for comparison.

On October 9, 1992, the safety evaluation for pressure testing the direct buried underground transfer lines (in preparation for pumping 101-T) was transmitted to DOE for approval. The transfer line pressure test must be completed before the tank contents can be pumped to a sound double-shell tank.

A Safety Evaluation for submersible pumping Tank 241-T-101 has been submitted to DOE for review. The Safety Evaluation included the installation of a saltwell screen. Upon completion of both a readiness review and an Environmental Safety & Quality Assurance overview, WHC will request authorization from DOE to pump Tank 241-T-101.

The potential impacts on the schedule are unknown at this time. Response to this event will have a negative impact on other planned activities because of the necessary diversion of resources.

RL-WHC-TANKFARM-1992-0076 (OFF NORMAL) - THERMOCOUPLE TREE BREAKS AT WELD JOINT WHILE ATTEMPTING TO REMOVE IT FROM TANK RESULTING IN A 10 DAY DELAY IN REMOVING THE TREE

On October 6, 1992, operators were attempting to remove the thermocouple tree from Riser 4A in 101-SY which had been bent during the last gas release event. This bent tree had the potential of breaking off and falling into the tank during future gas release events. On the third attempt, a new mechanism was engineered and fabricated to assist in removing the tree. This mandrel assembly was positioned inside the tree and wedged so that it could be used to pull the tree out of the tank. Once the tree was exposed enough to connect the hydraulic lifting mechanism, it was utilized to successfully remove the remaining section of the tree. The tree was removed on October 16, 1992.

The direct cause of this occurrence was the failure of the weld joint in the thermocouple tree. The in-tank camera revealed the break in the tree to be a smooth surface. Although the weld joints may have been appropriate for lifting a straight tree out of the tank, they may not have been sufficient to withstand the bend in the tree resulting from numerous tank venting events. It is likely that a contributing cause to the tree breaking is that tank venting events over the years have significantly flexed the tree in the tank.

RL-WHC-TANKFARM-1992-0078 (OFF NORMAL) - WEEKLY FIC LEVEL MEASUREMENT OF TANK 103-SX INDICATED LEVEL DECREASE IN EXCESS OF ALLOWABLE DEVIATION LIMITS

On October 19, 1992, a discrepancy was noted in the weekly level measurements in 241-SX-103, which was measured at 238.20 in. This level exceeds the maximum allowable decrease of 5 in. from the established baseline value of 245.30 in. During investigation of the level, it was determined that the tank level indicating equipment was functioning properly, thus indicating that the level had decreased in excess of allowable limits.

FIC calibration of Tank 103-SX FIC level indicator by craft personnel found the FIC out of calibration by 1.50 in. too low. After the calibration, the tank level measurement indicated 241.1 in., which is within the allowable deviation limit from the baseline of 245.30 in. This level decrease in Tank 103-SX was caused by an FIC that was out of calibration at the time of the reading.

Although the surface readings suggest a decreasing surface level, in-tank photographs reveal that the FIC device is measuring solids level in a hole in the waste surface. This hole has been deepening gradually, and probably accounts for the total level decrease over time. The actual surface level of the tank is believed to be at or very near the baseline of 245.30 in. In addition, readings from a Liquid Observation Well (LOW) in the tank, show there has been no appreciable change in interstitial liquid level over a period of approximately five years. This stable reading suggests no leakage from the tank.

TABLE 1. WATCH LIST TANKS

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 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 101-SY."

October 1992

Single-Shell Tanks			Single-Shell Tanks			Single-Shell Tanks		
Tank No.	Category		Tank No.	Category		Tank No.	Category	
101-A	Hydrogen		102-C	Ferrocyanide		105-TX	Organic Salts	
101-AX	Hydrogen		109-C	Ferrocyanide		118-TX	Ferrocyanide,	
103-AX	Hydrogen		111-C	Ferrocyanide			Organic Salts	
103-B	Organic Salts		112-C	Ferrocyanide		101-TY	Ferrocyanide	
102-BX	Ferrocyanide		102-S	Hydrogen,		103-TY	Ferrocyanide	
106-BX	Ferrocyanide			Organic Salts		104-TY	Ferrocyanide	
110-BX	Ferrocyanide		111-S	Hydrogen		103-U	Hydrogen	
111-BX	Ferrocyanide		112-S	Hydrogen		105-U	Hydrogen	
101-BY	Ferrocyanide		101-SX	Hydrogen		106-U	Organic Salts	
103-BY	Ferrocyanide		102-SX	Hydrogen		107-U	Organic Salts	
104-BY	Ferrocyanide		103-SX	Hydrogen		108-U	Hydrogen	
105-BY	Ferrocyanide		104-SX	Hydrogen		109-U	Hydrogen,	
106-BY	Ferrocyanide		105-SX	Hydrogen		48 Tanks		
107-BY	Ferrocyanide		106-SX	Hydrogen,				
108-BY	Ferrocyanide			Organic Salts		Double-Shell Tanks		
110-BY	Ferrocyanide		109-SX	Hydrogen potential,		Tank No.	Category	
111-BY	Ferrocyanide			other tanks vent		103-AN	Hydrogen	
112-BY	Ferrocyanide			thru it		104-AN	Hydrogen	
103-C	Organic Salts		101-T	Ferrocyanide		105-AN	Hydrogen	
106-C	High Heat Load		107-T	Ferrocyanide		101-SY	Hydrogen	
			110-T	Hydrogen		103-SY	Hydrogen	
						5 Tanks		

TABLE 2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 1 of 4)

These tanks have been declared an Unreviewed Safety Question (USQ) because their explosion potential exceeds previously reported safety analysis consequences (1). Ferrocyanide tanks are monitored weekly.

Temperatures in these tanks did not exceed the maximum temperature criteria or surveillance frequency limits for October 1992. All Watch List tanks are reviewed for increasing temperature trends.

Temperatures below are manual field readings. Some FeCN tanks are connected to the Tank Monitoring & Control System (TMACS) and readings are being received. TMACS readings on these tanks will begin in the November report because final test procedures and documentation were not completed until October 23, 1992. Most comments in footnote (8) refer to manual field reading conditions.

Tank No.	Highest Temp. Reading (8) This Month (F.)	Date	Probe (6) Position	Total Waste (inches) (7)	FeCN (x1000 g mol)(2)	Estimated Heat Load (3) (Btu/h)	Assumed Leak Date	Interim Stabilized Date
102-BX	69	10/18/92	TC#1	42	<1	<10000	1971	11/78
106-BX	70	10/28/92	TC#1	24	<1	<10000	Sound	N/A
110-BX	66	10/28/92	TC#1	80	<1	<10000	1976	8/85
111-BX	69	10/28/92	TC#1	91	<1	<10000	1984	N/A
101-BY	74	10/28/92	TC#1	148	<1	8200	Sound	5/84
103-BY	80	10/28/92	TC#1	153	66	8600	1973	N/A
104-BY	128	10/28/92	TC#2	155	83	5500	Sound	1/85
104-BY (5)	116	10/27/92	TC#1	155	83	5500	Sound	1/85
105-BY	115	10/24/92	TC#1	190	36	3400	1984	N/A
106-BY	129	10/28/92	TC#1	241	70	3300	1984	N/A
107-BY	96	10/24/92	TC#1	104	42	14500	1984	7/79
108-BY	108	10/28/92	TC#1	90	58	23000	1972	2/85
110-BY	120	10/28/92	TC#1	152	71	25200	Sound	1/85
110-BY (5)	112	10/27/92	TC#1	152	71	25200	Sound	1/85
111-BY	85	10/28/92	LOW	174	6	34200	Sound	1/85
112-BY	83	10/24/92	LOW	113	2	<10000	Sound	5/85
108-C	90	10/23/92	TC#2	31	25	10000	Sound	3/84
109-C	83	10/28/92	TC#1	31	30	3800	Sound	11/83
109-C (5)	84	10/28/92	TC#1	31	30	3800	Sound	11/83
111-C	79	10/28/92	TC#2	28	33	<10000	1968	3/84
112-C	85	10/27/92	TC#1	45	31	<10000	Sound	9/90
112-C (5)	86	10/27/92	TC#2	45	31	<10000	Sound	9/90
101-T	72	10/29/92	TC#2	56	<1	<10000	1992	N/A
107-T	69	10/29/92	TC#5	73	5	<10000	1984	N/A
118-TX (4)	76	10/15/92	TC#1	134	<1	4900	Sound	4/83
101-TY	69	10/16/92	TC#2	50	23	<10000	1973	8/83
103-TY	69	10/22/92	LOW	66	28	<10000	1973	2/83
104-TY	69	10/01/92	TC#2	24	12	<10000	1981	1/83

Legend: TC = Thermocouple
LOW = Liquid Observation Well. A single thermocouple is positioned in the well.

24 Tanks

FOOTNOTES: See next page

TABLE 2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 2 of 5)

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 (24 SSTs)?"
- (2) The estimates of the amount of FeCN in the tanks are 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 were 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 has just been completed; this information will be incorporated in the monthly report as soon as the document is cleared for public release.
- (4) This tank also contains a high concentration (>3% wt TOC) of organic salts.
- (5) New thermocouples trees were installed in these tanks during September 1992. See footnote (6) for spacing of the thermocouples.
- (6) Temperature probe positions - in most tanks, TC#1 is located approximately 4 in. above the bottom of the tank, TC#2 is located 24 in. above TC#1 and the remaining TCs are 24 in. above each previous TC.

TC Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Inches from bottom of tank	4	28	52	76	100	124	148	172	196	220	244	268	392	316

Footnotes continued next page

TABLE 2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 3 of 5)

(6) Continued

Following is the thermocouple spacing for the 4 new trees installed in the FeCN tanks in September 1992:

Tank C-109		Tank C-112		Tank BY-104		Tank BY-110	
Inches from		Inches from		Inches from		Inches from	
TC#	Tank Bottom	TC#	Tank Bottom	TC#	Tank Bottom	TC#	Tank Bottom
1	6	1	6	1	4	1	4
2	12	2	16	2	28	2	28
3	18	3	26	3	52	3	52
4	24	4	36	4	88	4	88
5	30	5	46	5	124	5	124
6	74	6	77	6	288	6	288
7	100	7	102				
8	125	8	128				
9	150	9	153				
10	175	10	178				

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Temperature probes inserted in LOWs are approximately 12 in. from the bottom of the tank, and have one reading only. Less than 60 of the 149 SSTs have LOWs installed.

(7) Calculations for Total Waste Inches: $\frac{\text{Kgal waste} - 12.5 \text{ Kgal waste}^*}{2.75 \text{ Kgal/inch}} + 12 \text{ inches}^*$

* The bottom 12 inches in these curved bottom tanks contains 12.5 Kgal. Inches are from centerline tank bottom. Waste Kgal are taken from Monthly Summary Report, SST Inventory and Status by Tank.

(8) The revised engineering evaluation, WHC-SD-WM-ER-134 REV 0-A, "Engineering Evaluation of Thermocouples in FeCN Watch Tanks," dated January 24, 1992, specifies the classification of the thermocouple conditions as follows:

Good - indicated temperature compares favorably to the temperature measured by another thermocouple in an LOW

Acceptable - thermocouples with measured resistance values within normal limits and an indicated temperature within an expected range

Marginal - thermocouples with higher than normal (0.5 ohms to 20 ohms depending on length) loop resistance, higher than normal resistance in one lead to ground, or having some other abnormality, e.g. inconsistent resistance measurements

Failed - those thermocouples with either open circuits or loop resistance greater than 100 ohms

Footnotes continued next page

TABLE 2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 4 of 5)

The highest temperature reading, if Good, Acceptable, or Marginal, is used in sheet 1 of Table 2. Failed thermocouples are not used. Some FeCN tanks are connected to the Tank Monitoring & Control System (TMACSs) and readings are being received. TMACS readings on these tanks will begin in the November report because final test procedures and documentation were not completed until October 23, 1992. Tanks connected to TMACS are identified in this footnote. Most other comments refer to manual field reading conditions.

Tank No.	Thermocouple Condition	Comments
102-BX	#1 thru 11 - Acceptable	11 TCs connected to switch
106-BX	#1, 3 thru 13 - Marginal #2 - Failed #14 - Acceptable	12 TCs connected to switch Not connected to switch
110-BX	#1 thru 14 Acceptable	12 TCs connected to switch
111-BX	#1 - Acceptable #2 thru 14 - Good	12 TCs connected to switch
101-BY	#1, 2, 3, 5 thru 14 Good #4 - Acceptable	14 TCs connected to switch Connected to TMACS
103-BY	#1 thru 14 Good	Connected to TMACS
104-BY	#1 thru 6 - Acceptable	6 TCs connected to switch. New tree installed in 1983 Additional tree installed 9/92 with 6 thermocouples. Readings are being taken by Instrument Technician. Connected to TMACS.
105-BY	#1 thru 6 - Good	6 TCs connected to switch. New tree installed in 1983. (Riser 10C) Connected to TMACS
105-BY	#1 thru 9, 12 thru 14 Good #10, 11 - Failed/Not repairable	10 TCs connected to switch. (Riser 1) This tree is taken manually, however, switch positions & TC numbers are not in agreement. TC#1 thru 6 on data sheet are taken in switch positions 1 thru 6 in Riser 10 TC#7 thru 16 on data sheet are taken in switch positions 1 thru 10 in Riser 1 #11 thru 14 in Riser 1 are not connected to switch. Connected to TMACS.
106-BY	#1 thru 6 - Acceptable	6 TCs connected to switch. New tree installed in 1983 Connected to TMACS.

Footnotes continued next page

TABLE 2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 5 of 5)

Tank No.	Thermocouple Condition	Comments
107-BY	#1 thru 14 – Marginal	14 TCs connected to two switches. Connected to TMACS
108-BY	#1, 2, 3, 6, 9 – Marginal #4, 5, 7, 8, 10 – Acceptable	10 TCs, no switch. Connected to TMACS
110-BY	#1 thru 6 – Good	6 TCs connected to switch. New tree installed in 1983 Additional tree installed 9/92 with 6 thermocouples. Readings are being taken by Instrument Technician. Connected to TMACS.
111-BY		No tree – readings taken in LOW by Instrument Technician Connected to TMACS.
112-BY		No tree – readings taken in LOW by Instrument Technician Connected to TMACS.
108-C	#1, 7, 8 – Marginal #2, 3, 5, 9, 10, 11 – Acceptable #4, 6 – Failed	11 TCs connected to switch
109-C	#1, 3 – Acceptable #2, 4 thru 11 Marginal	11 TCs connected to switch Additional tree installed 9/92 with 10 thermocouples. Readings are being taken by Instrument Technician
111-C	#1, 3, 9, 10, 11 – Failed #2, 4 thru 8 – Acceptable	11 TCs connected to switch
112-C	#1, 3 thru 11 Acceptable #2 – Failed	11 TCs connected to switch Additional tree installed 9/92 with 10 thermocouples. Readings are being taken by Instrument Technician.
101-T	#1, 3 – Failed #2, 4 thru 11 Acceptable	11 TCs connected to switch Readings taken by Instrument Technician (no LOW)
107-T	#1 thru 4 – Failed #5 thru 10 – Acceptable #11 – Marginal	11 TCs connected to switch Readings taken by Instrument Technician (no LOW)
118-TX	#1 thru 5, 7 thru 14 – Good #6 – Marginal	14 TCs connected to switch. Connected to TMACS.
101-TY	#1 thru 10, 12 thru 14 – Acceptable #11 – Marginal	12 TCs, no switch. Readings taken by Instrument Technician (no LOW) Connected to TMACS.
103-TY	#2, 3, 5 thru 14 – Marginal #1, 4 – Failed/Not repairable	12 TCs, no switch. Readings taken in LOW by Instrument Technician Connected to TMACS.
104-TY	#1 thru 14 – Marginal	12 TCs, no switch. Readings taken by Instrument Technician (no LOW) Connected to TMACS.

**TABLE 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 radiologic release resulting from a hydrogen burn and resulting secondary crust 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 October 1992. All Watch List tanks are reviewed for increasing temperature trends.

Tank No.	Reading This Month (F.)	Date	Probe (4) Position	Total Waste (5) (inches)	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
101-A	154	10/15/92	TC#9	354	Weekly	SOUND	N/A
101-AX	139	10/15/92	TC#1	279	Weekly	SOUND	N/A
103-AX	119	10/15/92	TC#1	48	Weekly	SOUND	8/87
102-S (3)	107	10/16/92	TC#3	207	Weekly	SOUND	N/A
111-S	94	10/08/92	TC#1	224	Weekly	SOUND	N/A
112-S	87	10/22/92	TC#3	239	Weekly	SOUND	N/A
101-SX	138	10/24/92	TC#1	173	Weekly	SOUND	N/A
102-SX	153	10/24/92	TC#1	205	Weekly	SOUND	N/A
103-SX	177	10/08/92	TC#1	245	Weekly	SOUND	N/A
104-SX	172	10/24/92	TC#1	231	Weekly	1988	N/A
105-SX	181	10/24/92	TC#1	256	Weekly	SOUND	N/A
106-SX (3)	109	10/08/92	TC#1	203	Weekly	SOUND	N/A
109-SX (2)	152	10/22/92	Tree 8/TC#1	98	Weekly	1965	5/81
110-T	62	10/15/92	TC#1	145	Weekly	SOUND	N/A
103-U	90	10/09/92	TC#3	178	Weekly	SOUND	N/A
105-U	92	10/09/92	TC#3	159	Weekly	SOUND	N/A
108-U	90	10/09/92	TC#2	178	Weekly	SOUND	N/A
109-U	88	10/09/92	TC#2	176	Weekly	SOUND	N/A
103-AN (1)	115	10/12/92			Weekly	SOUND	N/A
104-AN (1)	119	10/26/92			Weekly	SOUND	N/A
105-AN (1)	109	10/26/92			Weekly	SOUND	N/A
101-SY (1)	123	10/29/92			Daily	SOUND	N/A
103-SY (1)	119	10/26/92			Weekly	SOUND	N/A
23 Tanks							

Legend: Tree = Thermocouple Tree TC = Thermocouple

(1) Double-shell tanks

(2) This tank has the potential for flammable gas accumulation only because other SX tanks vent through it

(3) These tanks also contain potentially high concentrations of organic salts

(4) In most SSTs, TC#1 is located approximately 4" above the bottom of the tank, with each succeeding TC located 24" above the previous TC. See footnote (7) in Table 5 (High Heat Tanks) for further information.

(5) See footnote (8) in Table 5 (High Heat Tanks) for Total Waste Inches calculations.

**TABLE 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% 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)."

Temperatures in these tanks did not exceed the applicable maximum temperature criteria or surveillance frequency limits for the month of October 1992. These tanks are monitored weekly.
All Watch List tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temp. Reading This Month (F.)	Date	Probe (4) Position	Total Waste (5) Inches	Assumed Leaked Date	Interim Stabilized Date
103-B	67	10/23/92	TC#1	29	1978	2/85
103-C (3)	128	10/10/92	TC#2	78	SOUND	N/A
102-S (1)	107	10/16/92	TC#3	207	SOUND	N/A
106-SX (1)	109	10/08/92	TC#1	203	SOUND	N/A
105-TX	100	10/31/92	TC#3	228	1977	9/83
118-TX (2)	76	10/15/92	TC#1	134	SOUND	4/83
106-U	85	10/94/92	TC#2	90	SOUND	N/A
107-U	81	10/09/92	TC#2	155	SOUND	N/A
8 Tanks						

Legend: TC = Thermocouple

- (1) These tanks also have the potential for hydrogen or flammable gas accumulation
 (2) This tank also contains ferrocyanide
 (3) This tank was added due to the presence of a separable organic layer found on the surface
 (4) In most SSTs, TC#1 is located approximately 4" above the bottom of the tank, with each succeeding TC located 24" above the previous TC.
 See footnote (7) in Table 5 (High Heat Tanks) for further information.
 (5) See footnote (8) in Table 5 (High Heat Tanks) for Total Waste Inches calculations.

TABLE 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. These requirements do not apply to the temperature laterals beneath 105-A.

Temperatures in these tanks did not exceed SAR or OSD requirement limits for the month of October 1992. All high heat load tanks are on active ventilation. These high heat tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temp. Reading this Month (F.)	Date	Probe Position (7)	Total Waste Inches (8)	Monitoring Frequency	Estimated Heat Load (1) (Btu/h)	Assumed		Interim	
							Leaked	Date	Stabilized	Date
104-A (4)	198	10/15/92	R-18	18	Weekly	50000	14.65	1975		9/78
105-A (4)	153	10/28/92	R-16	14	Weekly	50000	14.65	1963		7/79
105-C (2)(6)	102	10/16/92	TC#1	62	Monthly	42000	11.72	SOUND		N/A
106-C (2)(3)(6)	164	10/16/92	TC#1	91	Weekly	150000	43.96	SOUND		N/A
107-SX	168	10/09/92	Tree 2&8/TC#1	45	Monthly	42000	11.72	1964		10/79
108-SX	200	10/09/92	Tree 8/TC#1	49	Monthly	45000	13.19	1962		8/79
109-SX (3)	154	10/29/92	Tree 8/TC#1	98	Weekly	50000	14.65	1965		5/81
110-SX	174	10/09/92	Tree 2/TC#1	30	Monthly	42000	11.72	1976		8/79
111-SX	190	10/09/92	Tree 2/TC#1	53	Monthly	44000	12.90	1974		7/79
112-SX	162	10/09/92	Tree 8/TC#1	41	Monthly	43000	12.60	1969		7/79
114-SX	190	10/09/92	Tree 2/TC#1.	73	Monthly	58000	17.00	1972		7/79
11 Tanks										
Legend: Probe Position										
Tree=Thermocouple Tree										
TC=Thermocouple on Tree										
R=Riser										
105-A Laterals (5)	239	10/29/92			Weekly					

Temperatures are taken in 34 thermocouples located beneath 105-A; although not regulated by SAR-006, the same criteria limits are applied.

Footnotes - see next page

TABLE 5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/h)(Sheet 2 of 3)

Footnotes

- (1) High heat loads as of 1988, evaluation completed April 20, 1989 (1kW = Btu/h). The predominant heat load for these tanks is from CS 137 (half life of 30 yr) and SR 90 (half life of 28.1 yr).
- (2) Periodic water additions are required in these tanks to maintain evaporative cooling and thus prevent overheating. Both tanks are scheduled for interim stabilization in 1996, at which time cooling water additions will be discontinued.
- (3) Watch List Tanks: 106-C 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." 109-SX is on the hydrogen Watch List because it has the potential for flammable gas accumulation due to other SX tanks venting through it.
- (4) 104/105-A exhauster was out of service from October 1, 1991, until August 20, 1992, when it was briefly restarted. Problems exist which must be resolved before the exhauster is operational. These temperatures are closely monitored.
- (5) Maximum lateral temperatures under 105-A increased 20 degrees F. by January 1992, but then dropped a few degrees and have remained fairly stable at current temperature. These temperatures are being closely monitored.
- (6) 105/106-C exhauster was out of service from January 25 to June 7, 1992, when the exhauster was restarted. Temperatures in both tanks have returned to baseline. Although 105-C is required to be monitored monthly, it is actually monitored weekly.

TABLE 5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/h)(Sheet 3 of 3)

Footnotes continued

(7) Tanks 104-A and 105-A
Two temperature probes are installed in risers in 104-A, and six are installed in risers in 105-A. These are individual probes. In 104-A, the probes are in contact with the sludge; in 105-A, they are in contact with the bottom of the tank (105-A has a bulged bottom).

Tanks 105-C and 106-C
Tank 105-C has four functioning thermocouples (#1 through 4). 106-C has six functioning thermocouples (#1 through 6).

TC Number	1	2	3	4	5	6
Inches from bottom of tank	4	28	52	76	100	288

Tanks 107, 108, 109, 110, 111, 112, and 114-SX
Each of these tanks has eight thermocouple trees, with eight thermocouples on each tree. Tree #2 and Tree #8 are monitored in each tank.

TC Number	1	2	3	4	5	6	7	8
Inches from bottom of tank	4	12	21	29	38	46	54	62

(8) Calculations for Total Waste Inches: $\frac{\text{Kgal waste} - 12.5 \text{ Kgal waste}^*}{2.75 \text{ Kgal/inch}} + 12 \text{ inches}^*$

* The bottom 12 inches in these curved bottom tanks contains 12.5 Kgal.

Inches are from centerline tank bottom.

Waste Kgal are taken from Monthly Summary Report, SST Inventory and Status by Tank section

TABLE 6. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION

October 1992

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE		SPACE DESIGNATED FOR SPECIFIC USE	
Complexant Concentrate (102-AN, 107-AN, 101-AY, 101-SY, 103-SY)	4.97 Mgal	Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Concentrate Phosphate (106-AN)	1.15 Mgal	Segregated Tank Space (102-AN, 107-AN, 103-AW, 101-AY)	0.65 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	5.1 Mgal	Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY)	0.70 Mgal
Neutralized Current Acid Waste (101-AZ, 102-AZ)	1.20 Mgal	Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	1.58 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, 102-AZ, 102-SY)	11.34 Mgal	Miscellaneous Head Space	0.20 Mgal
TOTAL DOUBLE-SHELL TANK SPACE			5.41 Mgal
NCRW and PFP Settled Solids (103-AW, 105-AW, 102-SY)	1.01 Mgal	24 Tanks at 1140 Kgal 4 Tanks at 980 Kgal	27.36 Mgal 3.92 Mgal
Total Inventory:	24.77 Mgal		31.28 Mgal
		Total Available Space	31.28 Mgal
		Double-Shell Tank Inventory	- 24.77 Mgal
		Space Designated for Specific Use	- 5.41 Mgal
		Remaining Unallocated Space	1.10 Mgal

(1) Easily reduced in volume by Evaporator/LERF
 (2) Reduced by Saltwell Liquid pumping
 (3) 241-101-AY and 102-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 Operating Specifications for the 241AN, 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 since last month: inventory increased 67 Kgal

TABLE 7. AUTOMATIC FOOD INSTRUMENT COMPANY (FIC) GAUGES OUT OF SERVICE

October 1992

Date of Last Automatic			Monitoring Frequency	
Tank No.	Category	FIC Reading	Reading Status	Corrective Action
101-TY	IS	10/20/92	No reading taken since 10/19/92	Quarterly
104-TY	IS	04/10/92	No reading taken since 04/10/92	Quarterly
105-U	-	08/09/92	No reading taken since 09/14/92	Weekly
102-B	IS	07/20/92	Taking manual FIC readings	Work Pkg 2E-91-000321
106-B	IS	07/20/92	Taking manual FIC readings	
112-B	IS	04/11/92	Taking manual FIC readings	
104-BX	IS	04/13/92	Taking manual FIC readings	
105-S	IS	09/26/92	Taking manual FIC readings	
110-S	-	09/26/92	Taking manual FIC readings	
105-SX	-	09/26/92	Taking manual FIC readings	
101-T	-	12/02/91	Taking manual FIC readings	
102-T	IS	05/26/91	Taking manual FIC readings	
103-T	IS	10/28/91	Taking manual FIC readings	
107-T	-	06/22/92	Taking manual FIC readings	
112-T	IS	03/16/90	Taking manual FIC readings	
109-T	IS	04/20/92	Taking manual FIC readings	
104-TX	IS	07/27/92	Taking manual FIC readings	
118-TX	IS	12/31/91	Taking manual FIC readings	
T-Farm	-	06/27/92	Taking manual FIC readings	
109-U	IS	12/29/91	Taking manual FIC readings	
102-AN	DST	10/28/92	Taking manual FIC readings	
108-AP	DST	07/24/92	Taking manual FIC readings	
101-SY	DST	08/23/91	Taking manual FIC readings	
103-SY	DST	09/26/92	Taking manual FIC readings	
102-AP	DST	05/07/92	Taking manual tape readings	Daily
101-AW	DST	10/23/92	Taking manual tape readings	Daily
103-AW	DST	03/21/92	Taking manual tape readings	Daily
105-AW	DST	01/30/92	Taking manual tape readings	Daily
101-AY	DST	08/31/90	Taking manual tape readings	Daily
101-AZ	DST	02/02/90	Taking manual tape readings	Daily
102-AZ	DST	02/15/90	Taking manual tape readings	Daily
102-SY	DST	01/06/92	Taking manual tape readings	Daily
Catch Tanks				
A-302-A		04/16/91	Taking manual FIC reading	Daily
S-302		07/02/90	Taking manual FIC reading	Daily
TX-302-C		08/07/91	No reading taken since 03/12/92	Daily
S-302-A		12/04/91	No reading taken since 12/04/91	Daily
Legend:			IS = Interim Stabilized	
			DST = Double-Shell Tank	

TABLE 8. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 1 of 4)

The following table indicates whether Single-Shell tank monitoring is in compliance with the requirements as specified in the applicable documents:

NOTE:

All Watch List and High Heat tank temperature monitoring is in compliance.

All Dome Elevation Survey monitoring is in compliance.

All Drywell monitoring is in compliance.

Psychrometrics (2)

In-tank Photographs (3)

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 Requirements
N/A	= Not Applicable (Example: No LOW installed)
O/S	= Out of Service
Gamma	= LOW readings taken by Gamma probe
Neutron	= LOW readings taken by Neutron probe

Information as of 10/30/92

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

TABLE 8. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
 149 TANKS (Sheet 2 of 4)

Information as of 10/30/92

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

TABLE 8. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 3 of 4)

Information as of 10/30/92

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

TABLE 8. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 4 of 4)

Information as of 10/30/92

Tank Number	Category		Temperature Readings (-357, POP)	Surface Level Readings (1) (-357)		LOW Readings (-357)		Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List	High Heat		M.T.	FIC	Gamma	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
107-U	X									
108-U	X									
109-U	X									
110-U						N/A	N/A			
111-U										
112-U						N/A	N/A			
201-U			O/C			N/A	N/A			
202-U			O/C			N/A	N/A			
203-U			O/C			N/A	N/A			
204-U			O/C			N/A	N/A			
Catch Tanks										
A-302-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
311-ER	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
Vent Sta.	N/A	N/A	N/A	O/C		N/A	N/A	N/A	N/A	N/A
151-AZ	N/A	N/A	N/A			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
S-302	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		O/C	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
TX-302-C	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	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
141-S	N/A	N/A	N/A	O/C		N/A	N/A	N/A	N/A	N/A
142-S	N/A	N/A	N/A	O/C		N/A	N/A	N/A	N/A	N/A

Totals: 149 tanks	48 Watch List Tanks (4)	11 High Heat Tanks (4)	O/C: 58 tanks - (semiannual monitoring frequency)	O/C: 11 tanks	O/C: 4 tanks	O/C: 6 tanks	O/C: 2 tanks	O/C: 15 tanks	0	0
						58 tanks have LOWs (2 are O/S)				

- (1) All SSTs have either manual tape or FIC, with the exception of 108-S which has both. All SST FICs are connected to CASS, with the exception of 106-BX. Manual surface level readings include readings taken by manual tape, manual FIC (not connected to Computer Automated Surveillance System, 106-BX), manual readings of automatic FIC (if CASS is printing "0"), or automatic FIC.
- (2) Psychrometric readings are taken on tanks with active exhausters (High heat tanks 104/105-A, 105/106-C, 107, 108, 109, 110, 111, 112, and 114-SX). Psychrometrics were not taken from 9/91 to 9/92, with the exception of 105/106-C which were taken on 7/27/92, and again on 10/29/92. Exhauster down on 104/105-A since 10/1/91. Psychrometric frequency monitoring not specified in -357 or operating procedures.
- (3) In-tank Photographs are not required by -357. Last in-tank photographs in SSTs were taken September 1990.
- (4) Two tanks are on both category lists (106-C, 109-SX)
- (5) Tanks in intrusion mode

BM Hanlon, 11/16/92

Figure 1. FY 93 Integrated Core Sample Schedule

CURRENT STATUS AND CONTINGENCY SPACE FOR THE 242-A EVAPORATOR RESTART

Figure 2. Current Status and Contingency Space
for the 242-A Evaporator Restart

APPENDIX A

**TANK AND EQUIPMENT CODE
AND STATUS DEFINITIONS**

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TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

October 1992

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 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)	<p>Characterized by a high content of organic carbon including organic complexants:</p> <p>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.</p>

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.

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.

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.

TANK INVESTIGATION

Intrusion	A term used to describe the infiltration of liquid into a waste tank.
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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, 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. Three probes are used to monitor changes in the ILL: acoustic; gamma; and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 58 LOWs (57 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 only) 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, 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 installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank 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.
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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.

WHC-EP-0182-55

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.
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.

APPENDIX B
TANK FARM CONFIGURATION, STATUS, AND
FACILITY CHARTS

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Figure B-1. High-Level Waste Tank Configuration

Figure B-2. Double-Shell Tank Instrumentation Configuration

29111046.2

Figure B-3. Single-Shell Tank Instrumentation Configuration

Figure B-4. Double-Shell Tank Status

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

A		19	125
	101 ^H 102	103 ^{AL} 104 ^{AL} 105 ^{AL} 106 ^{AL}	106 ^{AL}
	PI IS/PI	IS/II	IS/II

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

AX		112	7
	101 ^H 102 ^{AL} 103 ^H 104 ^{AL}	104 ^{AL}	
	PI IS/II	IS/II	IS/II

500,000 gal. tanks Constructed 1943-44

B		101 ^{AL} 102	103 ^{AL} 104	105 ^{AL} 106	107 ^{AL}	108	109	110 ^{AL}	111 ^{AL}	112 ^{AL}
	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II

55,000 gal. tanks

201 ^{AL}		201 ^{AL} 202	203 ^{AL} 204 ^{AL}
	IS/II	IS/II	IS/II

500,000 gal. tanks Constructed 1946-47

BX		101 ^{AL} 102 ^{AL} 103	104	105	106 ^F
	IS/II	IS/II	IS/II	IS/II	PI

30 344	11 26	13 193	16 189	57 68	8 164
107	108 ^{AL}	109	110 ^F	111 ^{AL}	112
IS/PI	IS/II	IS/PI	IS/II	PI	IS/PI

750,000 gal. tanks Constructed 1948-49

BY	387 5 109	341 41 0	400 160 5	406 18 40	503 192 44	642 235 95
101 ^F	102	103 ^{AL}	104 ^F	105 ^F	106 ^{AL}	106 ^F
IS/II	PI	PI	IS/II	PI	PI	PI
266 25 60	228 9 154	423 78 83	398 9 103	459 0 21	291 8 5	
107 ^{AL}	108 ^{AL}	109	110 ^F	111 ^F	112 ^F	
IS/II	IS/II	PI	IS/II	IS/II	IS/II	

500,000 gal. tanks Constructed 1943-44

C	88 3 88	423 37 423	195 133 62	295 11 295	150 11 150	229 48 197	275 26 275	66 0 66	66 4 62	187 7 187	57 0 57	104 32 104
101 ^{AL}	102	103 ^o	104	105 ^H	106 ^H	107	108 ^F	109 ^F	110 ^{AL}	111 ^{AL}	112 ^F	
IS/II	PI	PI	IS/II	PI	PI	PI	IS/II	IS/II	PI	IS/II	IS/PI	

55,000 gal. tanks

2 0 2	1 0 1	5 0 5	3 0 3
201 ^{AL}	202 ^{AL}	203 ^{AL}	204 ^{AL}
IS/II	IS/II	IS/II	IS/II

Sludge
Saltcake

XXX - Total Waste Volume [Solids+Supernatant] (In K gal.)
 XXX - Total Liquids (In K gal.)
 [Drainable Interstitial + Supernatant]
 XXX - Sludge (In K gal.)
 (Saltcake Totals Not Shown)

AL - Assumed Leaker
 H - High Heat Tanks
 F - Ferrocyanide
 (WHC-EP-0399)
 O - Organics
 H - Potential Flammable Gases
 (Hydrogen)(WHC-EP-0416)

II - Interim Isolated
 IS - Interim Stabilized
 PI - Partially Interim Isolated

Updated Quarterly 09/30/92
 SST-ALL/S.G. SPENCER/12-92

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

750,000 gal. tanks Constructed 1950-51

S		101	PI	102 ^H	PI	103	PI	104 ^{AL}	IS/II	105	PI	106	PI
		107	PI	108	PI	109	PI	110	PI	111 ^H	PI	112 ^H	PI

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

SX		101 ^H	PI	102 ^H	PI	103 ^H	PI	104 ^{AL}	PI	105 ^H	PI	106 ^H	PI	107 ^{AL}	IS/II	108	PI
		108 ^{AL}	IS/II	109 ^H	IS/II	110 ^{AL}	IS/II	111 ^{AL}	IS/II	112 ^{AL}	IS/II	113 ^{AL}	IS/II	114 ^{AL}	IS/II	115 ^{AL}	IS/II

500,000 gal. tanks Constructed 1943-44

T		101 ^F	PI	102	IS/II	103 ^{AL}	PI	104	PI	105	IS/II	106 ^{AL}	IS/II	107 ^{AL}	PI	108 ^{AL}	IS/II	109 ^{AL}	IS/II	110 ^H	PI	111 ^{AL}	PI	112	IS/II
---	--	------------------	----	-----	-------	-------------------	----	-----	----	-----	-------	-------------------	-------	-------------------	----	-------------------	-------	-------------------	-------	------------------	----	-------------------	----	-----	-------

55,000 gal. tanks

	201	202	203	204
--	-----	-----	-----	-----

750,000 gal. tanks Constructed 1947-48

TX
101	102	103	104	105 ^{AL}	106	107 ^{AL}	108	109	
IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II

110 ^{AL}	111	112	113 ^{AL}	114 ^{AL}	115 ^{AL}	116 ^{AL}	117 ^{AL}	118 ^F	
IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	IS/II	

750,000 gal. tanks Constructed 1951-52

TY
101 ^{AL}	102 ^F	103 ^{AL}	104 ^{AL}	105 ^{AL}	106 ^{AL}	AL
IS/II	IS/II	IS/II ^F	IS/II	IS/II ^F	IS/II	IS/II

500,000 gal. tanks Constructed 1943-44

U	25 3 22	374 144 43	468 189 32	22 7 22	418 179 32	226 83 26	406 178 15	468 196 29	463 182 48	329 122 26	49 4 45
101 ^{AL}	102	103 ^H	104 ^{AL}	105 ^H	106 ^O	107 ^O	108 ^H	109 ^H	110 ^{AL}	111	112 ^{AL}
IS/II	PI	PI	IS/II	PI	PI	PI	PI	PI	IS/PI	PI	IS/II

55,000 gal. tanks

5 1 4	5 1 4	3 1 2	3 1 2
201	202	203	204
IS/II	IS/II	IS/II	IS/II

Sludge

Saltcake

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

AL = Assumed Leaker
 HH = High Heat Tanks
 F = Ferrocyanide (WHC-EP-0399)
 O = Organics
 H = Potential Flammable Gases (Hydrogen)(WHC-EP-0416)

II = Interim Isolated
 IS = Interim Stabilized
 PI = Partially Interim Isolated

Updated Quarterly 09/30/92

SST-ALL/S.G. SPENCER/12-92

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

Figure B-7. Tank Farm Facilities - Quick Reference

200 WEST

200 EAST

NOTE: ALL SINGLE SHELL TANKS REMOVED FROM SERVICE
NOVEMBER 21, 1980.

HANTFRM BCAD
TS12

UPDATED 09/30/92.

APPENDIX C

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

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TABLE C-1. MONTHLY SUMMARY

TANK STATUS		200		200		200	
October 1992		EAST AREA		WEST AREA		TOTAL	
IN SERVICE		25	3	28	(2)		
OUT OF SERVICE		66	83	149			
SOUND		59	51	110			
ASSUMED LEAKER		32	35	67			
INTERIM STABILIZED (1)		51	54	105			
ISOLATED							
PARTIAL INTERIM		21	30	51			
INTERIM		45	53	98			

WASTE VOLUMES (K gallons)		200		200		200	
		EAST AREA		WEST AREA		TOTAL	
SUPERNATANT							
AGING		1723	0	1723	0	1723	1723
CC	Aging waste	1957	198	2155	3	2152	2155
CP	Complexant concentrate waste	980	0	980	0	980	980
DC	Concentrated phosphate waste	841	1	842	1	841	842
DN	Dilute complexed waste	8942	0	8942	0	8942	8942
DN/PD	Dilute non-complexed waste	926	0	926	0	926	926
DN/PT	Dilute non-complex/PUREX TRU solids	0	603	603	0	603	603
DSSF	Dilute non-complex/PFP TRU solids	3831	48	3879	56	3823	3879
NCPLX	Double-shell slurry feed	234	310	544	544	0	544
	Non-complexed waste						
TOTAL SUPERNATANT		19434	1160	20594	604	19990	20594
SOLIDS							
	Double-shell slurry	937	1103	2040	0	2040	2040
	Sludge	8206	6215	14421	12466	1955	14421
	Saltcake	6577	17352	23929	23169	760	23929
TOTAL SOLIDS		15720	24670	40390	35635	4755	40390
TOTAL WASTE		35154	25830	60984	3550	24745	60984
AVAILABLE SPACE IN TANKS		5657	881	6538	0	6538	6538
DRAINABLE INTERSTITIAL		2253	4505	6758	6319	439	6758
DRAINABLE LIQUID REMAINING		21682	5665	27347	6918	20429	27347

(1) Includes tanks that do not meet current established supernatant and interstitial liquid stabilization criteria, B-104, B-107, B110, B-111, BX-110, T-102, T-112, and U-110.

(2) Includes five double-shell tanks on Hydrogen Watch List not currently in service, 103-AN, 104-AN, 105-AN, 101-SY, and 103-SY.

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

TABLE C-2. TANK USE SUMMARY

October 1992

TANK FARMS	IN SERVICE	OUT OF SERVICE	SOUND	ASSUMED LEAKER	ISOLATED TANKS PARTIAL	INTERIM	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	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	11 (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	54
TOTAL	28	149	110	67	51	98	105

(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) Five Double-Shell Tanks on the Hydrogen Tank Watch List are not currently in service.

TABLE C-3. INVENTORY SUMMARY BY TANK FARM

WASTE VOLUMES (Kgallons)

October 1992

SOLIDS VOLUME

SUPERNATANT LIQUID VOLUMES

TANK FARM	TOTAL WASTE	AVAIL SPACE	AGING	CC	CP	DC	DN	DN/PD	DN/PD	DN/PD	DSSF	NCPLX	TOTAL	DSS	SLUDGE	CAKE	TOTAL
EAST																	
A	1536	0	0	0	0	0	0	0	0	0	8	0	8	0	556	972	1528
AN	6953	1027	0	1954	980	0	638	0	0	0	1940	0	5512	937	504	0	1441
AP	6345	2775	0	0	0	0	5521	0	0	0	824	0	6345	0	0	0	0
AW	5522	1321	0	0	0	0	2206	926	0	0	1059	0	4191	0	1135	196	1331
AX	906	0	0	3	0	0	0	0	0	0	0	0	3	0	19	884	903
AY	1533	427	0	0	0	841	577	0	0	0	0	0	1418	0	115	0	115
AZ	1853	107	1723	0	0	0	0	0	0	0	0	0	1723	0	130	0	130
B	2057	0	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	0	50	50	0	1354	155	1509
BY	4744	0	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	0	169	169	0	1977	0	1977
Total	35154	5657	1723	1957	980	841	8942	926	0	3831	0	234	19434	937	8206	6577	15720
WEST																	
S	5680	0	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	0	62	63	0	1532	2858	4390
SY	2539	881	0	198	0	0	0	0	603	0	0	0	801	1103	71	564	1738
T	2065	0	0	0	0	0	0	0	0	0	0	74	74	0	1991	0	1991
TX	6905	0	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	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	25830	881	0	198	0	1	0	0	603	48	0	310	1160	1103	6215	17352	24570
TOTAL	60984	6538	1723	2155	980	842	8942	926	603	3879	0	544	20594	2040	14421	23929	40390

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

TABLE C-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
October 1992

TANK STATUS			LIQUID VOLUME										SOLIDS VOLUME										VOLUME DETERMINATION				CHANGE SINCE LAST MONTHLY REPORT	
TANK	WASTE MATL	TANK INTEGRITY USE	TANK	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)	SALT LIQ VOL	CAKE VOL	DSS SLDG (Kgal)	LIQ VOL	SOL VOLUME	MTHD	MTHD UPDATE	LAST PHOTO DATE	DATE	DATE	DATE	DATE	DATE	DATE		
***** AN FARM STATUS *****																												
101AN	DN	SOUND	DRCVR	231.8	638	502	638	0	0.0	0.0	638	638	0	0	0	0	FM	S	08/22/89	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
102AN	CC	SOUND	CWHT	397.1	1106	34	1017	3	0.0	0.0	1020	1017	0	89	0	0	FM	S	08/22/89	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
103AN	DSS	SOUND	CWHT	346.2	950	190	13	0	0.0	0.0	13	13	937	0	0	0	FM	S	08/22/89	10/29/87	10/29/87	10/29/87	10/29/87	10/29/87	10/29/87	10/29/87	10/29/87	
104AN	DSSF	SOUND	CWHT	386.6	1062	78	798	25	0.0	0.0	823	801	0	264	0	0	FM	S	08/22/89	08/19/88	08/19/88	08/19/88	08/19/88	08/19/88	08/19/88	08/19/88	08/19/88	
105AN	DSSF	SOUND	CWHT	410.9	1129	11	1129	0	0.0	0.0	1129	1129	0	0	0	0	FM	S	10/22/84	01/26/88	01/26/88	01/26/88	01/26/88	01/26/88	01/26/88	01/26/88	01/26/88	
106AN	CP	SOUND	CWHT	368.4	997	143	980	0	0.0	0.0	980	980	0	17	0	0	FM	S	08/22/89	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
107AN	CC	SOUND	CWHT	389.7	1071	69	937	9	0.0	0.0	946	937	0	134	0	0	FM	S	08/22/89	09/01/88	09/01/88	09/01/88	09/01/88	09/01/88	09/01/88	09/01/88	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6953	1027	5512	37	0.0	0.0	5549	5515	937	504	0													
***** AP FARM STATUS *****																												
101AP	DN	SOUND	DRCVR	386.1	1062	78	1062	0	0.0	0.0	1062	1062	0	0	0	0	FM	S	05/01/89	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
102AP	DN	SOUND	GRIFD	49.5	149	991	149	0	0.0	0.0	149	149	0	0	0	0	FM	S	07/11/89	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
103AP	DN	SOUND	DRCVR	412.5	1134	6	1134	0	0.0	0.0	1134	1134	0	0	0	0	FM	S	10/13/88	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
104AP	DN	SOUND	GRIFD	7.2	20	1120	20	0	0.0	0.0	20	20	0	0	0	0	FM	S	10/13/88	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
105AP	DSSF	SOUND	CWHT	299.6	824	316	824	0	0.0	0.0	824	824	0	0	0	0	FM	S	02/02/89	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
106AP	DN	SOUND	DRCVR	411.5	1131	9	1131	0	0.0	0.0	1131	1131	0	0	0	0	FM	S	10/13/88	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
107AP	DN	SOUND	DRCVR	408.2	1121	19	1121	0	0.0	0.0	1121	1121	0	0	0	0	FM	S	10/13/88	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
108AP	DN	SOUND	DRCVR	328.9	904	236	904	0	0.0	0.0	904	904	0	0	0	0	FM	S	10/13/88	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	
8 DOUBLE-SHELL TANKS				TOTALS:	6345	2775	6345	0	0.0	0.0	6345	6345	0	0	0	0												

TABLE C-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
October 1992

TANK STATUS			LIQUID VOLUME										SOLIDS VOLUME										VOLUME DETERMINATION				CHANGE SINCE LAST MONTHLY REPORT																												
TANK	WASTE TANK	TANK INTEGRITY USE	EQUIVA- LENT	WASTE INCHES	TOTAL WASTE (Kgal)	TOTAL AVAIL SPACE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	DSS (Kgal)	SLDG (Kgal)	CAKE (Kgal)	VOL (Kgal)	SOL VOL	SOLIDS VOLUME	LAST UPDATE	DATE	PHOTO	DATE	DATE	DATE																															
																									***** AM FARM STATUS *****										***** AY FARM STATUS *****										***** AZ FARM STATUS *****										
101AW	DSSF	SOUND	CUHT	414.8	1143	-3	1059	2	0.0	0.0	1061	1059	0	84	0	FM	S	10/22/84	03/17/88																																				
102AW	DN	SOUND	EVFD	377.2	730	410	729	0	0.0	0.0	729	729	0	1	0	FM	S	02/29/84	02/02/83																																				
103AW	DN/PD	SOUND	DRCVR	234.8	646	494	283	37	0.0	0.0	320	298	0	363	0	FM	S	02/01/89	0/ 0/ 0																																				
104AW	DN	SOUND	DRCVR	408.9	1124	16	834	49	0.0	0.0	883	861	0	179	111	FM	S	03/05/87	02/02/83																																				
105AW	DN/PD	SOUND	DRCVR	327.3	940	200	643	29	0.0	0.0	672	650	0	297	0	FM	S	03/05/87	0/ 0/ 0																																				
106AW	DN	SOUND	SRCVR	190.8	939	201	643	42	0.0	0.0	685	663	0	211	85	FM	S	01/31/92	02/02/83																																				
6 DOUBLE-SHELL TANKS			TOTALS:		5522	1318	4191	159	0.0	0.0	4350	4260	0	1135	196																																								
101AY	DC	SOUND	DRCVR	339.8	924	56	841	2	0.0	0.0	843	841	0	83	0	FM	S	02/02/87	12/28/82																																				
102AY	DN	SOUND	DRCVR	186.7	609	371	577	0	0.0	0.0	577	577	0	32	0	FM	S	02/10/88	04/28/81																																				
2 DOUBLE-SHELL TANKS			TOTALS:		1533	427	1418	2	0.0	0.0	1420	1418	0	115	0																																								
101AZ	AGING	SOUND	CUHT	334.3	919	61	884	0	0.0	0.0	884	884	0	35	0	FM	S	09/30/90	08/18/83																																				
102AZ	AGING	SOUND	DRCVR	348.3	934	46	839	4	0.0	0.0	843	839	0	95	0	FM	S	06/04/92	12/24/84																																				
2 DOUBLE-SHELL TANKS			TOTALS:		1853	107	1723	4	0.0	0.0	1727	1723	0	130	0																																								

TABLE C-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
October 1992

TANK STATUS		LIQUID VOLUME					SOLIDS VOLUME					VOLUME DETERMINATION					CHANGE					
TANK	WASTE TANK	MATL	INTEGRITY USE	EQUIVA- LENT	WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	REMAIN (Kgal)	LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SALT LIO CAKE VOL (Kgallons)	VOL UPDATE	SOLIDS VOLUME	LAST DATE	PHOTO DATE	MONTHLY REPORT	SINCE LAST MONTHLY REPORT	
***** SY FARM STATUS *****																						
101SY	CC		SOUND	CWHT	408.0	1114	26	24	237	0.0	0.0	261	255	530	0	560	FM	S	01/31/92	04/12/89		
102SY	DN/PT		SOUND	DRCVR	245.8	674	466	603	0	0.0	0.0	603	603	0	71	0	FM	S	05/12/87	04/29/81		
103SY	CC		SOUND	CWHT	271.4	751	389	174	0	0.0	0.0	174	174	573	0	4	FM	S	10/22/84	10/01/85		
3 DOUBLE-SHELL TANKS					TOTALS:	2539	881	801	237	0.0	0.0	1038	1032	1103	71	564						
GRAND TOTAL						24745	6535	19990	439		20429	20293	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		In This Document		OSD-T-151-00007**	
		(Most Conservative)	Operating Limit		Specification Limit	
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.)	

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

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

October 1992

WHC-EP-0182-55

TANK STATUS			LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION				CHG		
TANK	WASTE TANK MATERIAL 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 UPDATE	SOURCE SEE FOOTNOTE	LAST PHOTO DATE	MONTHLY REPORT
+++++ A FARM STATUS +++++																	
101A	DSSF	SOUND	953	0	413	0.0	0.0	413	390	3	950	P	F	11/21/80			08/21/85
102A	DSSF	SOUND	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	(1)		07/20/89
103A	DSSF	ASMD LKR	370	4	13	0.0	111.0	12	0	366	0	-	FP	06/03/88	(1)		12/28/88
104A	NCPLX	ASMD LKR	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78			06/25/86
105A	NCPLX	ASMD LKR	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	(1)		08/20/86
106A	CP	SOUND	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 +++++																	
101AX	DSSF	SOUND	748	0	320	0.0	0.0	320	298	3	745	P	F	05/06/82			08/18/87
102AX	CC	ASMD LKR	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88			06/05/89
103AX	CC	SOUND	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87			08/13/87
104AX	NCPLX	ASMD LKR	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					

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

TANK STATUS			LIQUID VOLUME										SOLIDS VOLUME			VOLUME DETERMINATION										CHG																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-ABLE	DRAIN-ABLE	INTER-STIT.	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE	PUMP-ABLE	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME	SOLIDS VOLUME	METHOD	UPDATE	SEE FOOTNOTE	LAST PHOTO DATE	MONTHLY REPORT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

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

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

TANK STATUS		LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
TANK	WASTE TANK MATERIAL INTEGRITY	STABIL/ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-ABLER	DRAIN-ABLE	INTER-ABLER	PUMPED THIS MONTH	TOTAL PUMPED (Kgal)	DRAIN-ABLE	PUMP-ABLE	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME	SOLIDS VOLUME	SOLIDS UPDATE	CHG SINCE LAST MONTHLY REPORT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

TANK STATUS		LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION								CHG SINCE LAST MONTHLY REPORT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		STABIL/ ISOLATION STATUS	TANK WASTE MATERIAL	INTEGRITY	STATUS	(Kgal)	TOTAL WASTE KGAL	SUPER- NATANT LIQUID KGAL	DRAIN- ABLE INTER- STIT.	PUMPED THIS MONTH	TOTAL PUMPED (Kgal)	LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME UPDATE		SOLIDS UPDATE SOURCE SEE FOOTNOTE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

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		SOLIDS		SOLIDS UPDATE SOURCE	CHG SINCE LAST MONTHLY REPORT
													VOLUME METHOD	VOLUME METHOD	VOLUME METHOD	VOLUME METHOD		
+++++ SX FARM STATUS +++++																		
101SX	DC	SOUND	/PI	456	1	145	0.0	0.0	146	124	112	343	P	FP	04/28/82	03/10/89		
102SX	DSSF	SOUND	/PI	543	0	183	0.0	0.0	183	177	117	426	P	M	04/28/82	01/07/88		
103SX	NCPLX	SOUND	/PI	652	1	232	0.0	0.0	233	211	115	536	F	S	07/15/91	12/17/87		
104SX	DSSF	ASMD LKR	/PI	614	0	201	0.0	113.2	201	195	136	478	F	S	07/07/89	09/08/88		
105SX	DSSF	SOUND	/PI	683	0	261	0.0	0.0	261	238	73	610	P	F	04/28/82	06/15/88		
106SX	NCPLX	SOUND	/PI	538	61	194	0.0	0.0	255	233	12	465	F	PS	10/28/80	06/01/89		
107SX	NCPLX	ASMD LKR	IS/11	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82	03/06/87		
108SX	NCPLX	ASMD LKR	IS/11	115	0	6	0.0	0.0	6	0	115	0	P	M	04/28/82	03/06/87		
109SX	NCPLX	ASMD LKR	IS/11	250	0	10	0.0	0.0	10	0	250	0	P	M	04/28/82	05/21/86		
110SX	NCPLX	ASMD LKR	IS/11	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76	02/20/87		
111SX	NCPLX	ASMD LKR	IS/11	125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74	03/10/87		
112SX	NCPLX	ASMD LKR	IS/11	92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82	03/10/87		
113SX	NCPLX	ASMD LKR	IS/11	26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82	03/18/88		
114SX	NCPLX	ASMD LKR	IS/11	181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82	02/26/87		
115SX	NCPLX	ASMD LKR	IS/11	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82	03/31/88		
TOTALS:				4453	63	1261	0.0	113.2	1324	1178	1532	2858						
15 SINGLE-SHELL TANKS																		

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

WHC-EP-0182-55

TANK STATUS			LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION				CHG			
WASTE TANK	TANK INTEGRITY	STABIL/ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-ABLE	DRAIN-ABLE	INTER-ABLE	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS SOURCE	LAST PHOTO DATE	SINCE LAST MONTHLY REPORT	
																		(Kgal)
+++++ T FARM STATUS +++++																		
101T	NCLPX	ASMD LKR	133	30	5	0.0	0.0	0.0	35	30	103	0	F	S	08/31/84		07/03/84	*
102T	NCPLX	SOUND	32	13	0	0.0	0.0	0.0	13	13	19	0	P	FP	08/31/84		06/28/89	
103T	NCPLX	ASMD LKR	27	4	0	0.0	0.0	0.0	4	0	23	0	F	FP	11/29/83	(1)	07/02/84	
104T	NCPLX	SOUND	445	3	47	0.0	0.0	0.0	50	44	442	0	P	MP	04/28/82		06/29/89	
105T	NCPLX	SOUND	98	0	23	0.0	0.0	0.0	23	17	98	0	P	F	05/29/87		05/14/87	
106T	NCPLX	ASMD LKR	21	2	0	0.0	0.0	0.0	2	0	19	0	P	FP	04/28/82		06/29/89	
107T	NCPLX	ASMD LKR	180	9	13	0.0	0.0	0.0	22	16	171	0	P	FP	08/31/84		07/12/84	
108T	NCPLX	ASMD LKR	44	0	0	0.0	0.0	0.0	0	0	44	0	P	M	04/28/82		07/17/84	
109T	NCPLX	ASMD LKR	58	0	0	0.0	0.0	0.0	0	0	58	0	M	M	12/30/84	(1)	07/03/84	
110T	NCPLX	SOUND	379	3	39	0.0	0.0	0.0	42	36	376	0	P	FP	04/28/82		07/12/84	
111T	NCPLX	ASMD LKR	458	2	49	0.0	0.0	0.0	51	45	456	0	P	FP	04/28/82		08/02/84	
112T	NCPLX	SOUND	67	7	0	0.0	0.0	0.0	7	7	60	0	P	FP	04/28/82		08/01/84	
201T	NCPLX	SOUND	29	1	3	0.0	0.0	0.0	4	0	28	0	M	PS	05/31/78		04/15/86	
202T	NCPLX	SOUND	21	0	2	0.0	0.0	0.0	2	0	21	0	FP	P	07/12/81		07/06/89	
203T	NCPLX	SOUND	35	0	4	0.0	0.0	0.0	4	0	35	0	M	PS	01/31/78		08/03/89	
204T	NCPLX	SOUND	38	0	4	0.0	0.0	0.0	4	0	38	0	FP	P	07/22/81		08/03/89	
TOTALS:			2065	74	189	0.0	0.0	0.0	263	208	1991	0						
16 SINGLE-SHELL TANKS																		

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

TANK STATUS		LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION				CHG				
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- ABLE 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 SOURCE	LAST PHOTO DATE	SINCE LAST MONTHLY REPORT
+++++ TX FARM STATUS +++++																		
101TX	NCLPX	SOUND	IS/11	87	3	2	0.0	0.0	5	0	84	0	F	P	02/02/84	(1)		10/24/85
102TX	NCPLX	SOUND	IS/11	113	0	22	0.0	94.4	22	0	0	113	M	S	08/31/84			10/31/85
103TX	NCPLX	SOUND	IS/11	157	0	15	0.0	68.3	15	0	157	0	F	S	08/14/80			10/31/85
104TX	NCPLX	SOUND	IS/11	65	1	14	0.0	3.6	15	0	0	64	F	FP	04/06/84			10/16/84
105TX	NCPLX	ASMD LKR	IS/11	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77			10/24/89
106TX	NCPLX	SOUND	IS/11	453	0	10	0.0	134.6	10	0	0	453	M	S	08/29/77			10/31/85
107TX	NCPLX	ASMD LKR	IS/11	36	1	1	0.0	0.0	2	0	0	35	FP	FP	01/20/84	(1)		10/31/85
108TX	NCPLX	SOUND	IS/11	134	0	0	0.0	13.7	0	0	0	134	P	FP	05/30/83			09/12/89
109TX	NCPLX	SOUND	IS/11	384	0	10	0.0	72.3	10	0	0	384	F	PS	05/30/83			10/24/89
110TX	NCPLX	ASMD LKR	IS/11	462	0	15	0.0	115.1	15	0	0	462	M	PS	05/30/83			10/24/89
111TX	NCPLX	SOUND	IS/11	370	0	9	0.0	98.4	9	0	0	370	M	PS	07/26/77			09/12/89
112TX	NCPLX	SOUND	IS/11	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83			11/19/87
113TX	NCPLX	ASMD LKR	IS/11	607	0	16	0.0	19.2	16	0	0	607	M	PS	05/30/83			04/11/83
114TX	NCPLX	ASMD LKR	IS/11	535	0	15	0.0	104.3	15	0	0	535	M	PS	05/30/83			04/11/83
115TX	NCPLX	ASMD LKR	IS/11	640	0	19	0.0	99.1	19	0	0	640	M	S	03/25/83			06/15/88
116TX	NCPLX	ASMD LKR	IS/11	631	0	23	0.0	23.8	23	0	0	631	M	PS	03/31/72			10/17/89
117TX	NCPLX	ASMD LKR	IS/11	626	0	8	0.0	54.3	8	0	0	626	M	PS	12/31/71			04/11/83
118TX	NCPLX	SOUND	IS/11	347	0	27	0.0	89.1	27	0	0	347	F	S	11/17/80			12/19/79
18 SINGLE-SHELL TANKS				TOTALS:	6905	5	250	0.0	1205.7	255	0	241	6659					

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

TANK STATUS			LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
TANK	WASTE TANK MATERIAL 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 UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	CHG SINCE LAST MONTHLY REPORT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
October 1992

TANK STATUS		LIQUID VOLUME				SOLIDS VOLUME				VOLUME DETERMINATION				CHG SINCE LAST MONTHLY REPORT	
WASTE TANK MATERIAL INTEGRITY	STATUS	STABIL/ ISOLATION	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 UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE
201U NCPLX SOUND	IS/11		5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/03/89
202U NCPLX SOUND	IS/11		5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89
203U NCPLX SOUND	IS/11		3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89
204U NCPLX SOUND	IS/11		3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89
16 SINGLE-SHELL TANKS		TOTALS:	3550	168	1138	0.0	0.0	1306	1104	638	2744				
GRAND TOTAL			36239	604	6319			6918	5443	12466	23169				

NOTE: +/- 1K gal differences are the result of rounding

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate.

- (1) WHC-SD-RE-TI-178 SST STABILIZATION RECORD
- (2) TANK FARMS COGNIZANT ENGINEER MONTHLY INPUT (Retained 10 yr in Surveillance & Data Acquisition office)

If an asterisk (*) appears in "Chg since last monthly report" column, see Changes section following this Inventory section for explanation.

CHANGES TO THE INVENTORY AND STATUS BY TANK FOR SINGLE-SHELL TANKS

October 1992

<u>Tank No.</u>	<u>Comments</u>
101-T	Information per Unusual Occurrence Report RL-WHC-TANKFARM-1992-0073: On October 4, 1992, this tank was declared an assumed leaker. Total leakage to date is assumed to be approximately 7500 gal.

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APPENDIX D
PERFORMANCE SUMMARY

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TABLE D-1. PERFORMANCE SUMMARY (Sheet 1 of 3)

WASTE VOLUMES (Kgallons)

October 1992

INCREASES/DECREASES IN WASTE VOLUMES
STORED IN DOUBLE-SHELL TANKS

SOURCE	THIS MONTH	FY1993 TO DATE
B PLANT	10	10
PUREX TOTAL (1)	5	5
PFP (1)	0	0
T PLANT (1)	10	10
S PLANT (1)	0	0
300/400 AREAS (1)	6	6
SULFATE WASTE-100 N (2)	0	0
MINI-RUN (14)	0	0
TANK FARMS & SWL (6)	6	6
Tank Farms	6	
Saltwell Liquid	0	
OTHER GAINS	43	43
Slurry increase (3)	9	
Condensate	18	
Instrument change (7)	13	
Unknown (5)	3	
OTHER LOSSES	-13	-13
Slurry decrease (3)	-2	
Evaporation (4)	-7	
Instrument change (7)	4	
Unknown (5)	-6	
EVAPORATED	0	0
GROUTED	0	0
Total	67	67

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

INCREASES/DECREASES IN WASTE VOLUMES
STORED IN SINGLE-SHELL TANKS

SOURCE	THIS MONTH	FY1993 TO DATE
105-C (8)	Gains 2	2
	Losses -1	-1
106-C (8) (*)	Gains 10	10
	Losses -8	-8
Total	3	3

(*) Water added 10/7/92 to 105-C; Water added 10/17/92 to 106-C

CUMULATIVE EVAPORATION - 1950 TO PRESENT
WASTE VOLUME REDUCTION

FACILITY	
242-B EVAPORATOR (9)	7172
242-T EVAPORATOR (1950's) (9)	8181
IN-TANK SOLIDIFICATION UNIT 1 (10)	11876
IN-TANK SOLIDIFICATION UNIT 2 (10)	15295
IN-TANK SOLID. UNIT 1 & 2 (10)	7965
(after conversion of Unit 1 to a cooler for Unit 2)	
242-T (Modified) (9)	24471
242-S EVAPORATOR (11)	41983
242-A EVAPORATOR (12)	65227
B PLANT (Cell 23) (13)	1185
REDOX (12)	12393
Total	195748
TOTAL THROUGHPUT	
FACILITY	
242-A EVAPORATOR (12)	182437
242-S EVAPORATOR (11)	134587
Total	317024

Footnotes: See Next Page

TABLE D-1. Performance Summary (Sheet 2 of 3)

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

- (1) Including Flush
- (2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste (Na_2SO_4).
- (3) Slurry increase/growth is caused by gas generation within the waste. The gas which is trapped in the waste expands in the tank causing the surface level and volume to increase. Slurry decrease results from the periodic release of gas in the waste.
- (4) Aging waste tanks
- (5) Unknown waste gains or losses may be the result of rounding calculations, clean water slowly leaking through a valve, changes in levels (expansion/constriction) because of to ambient temperature changes, different measuring devices being used by Tank Farm operators, transfers taking place during the end of the month, Tank Farm activities such as miscellaneous water additions not associated with facility waste generation, or the addition of water which is added to aging waste tanks and then evaporated off.
- (6) Includes Tank Farms miscellaneous flushes (flushes are used to "clean out" pipelines and reduce personnel exposure, reduce potential for waste incompatibility, prevent line plugging, and reduce waste content of potential spills or leaks), and saltwell liquid, which results from pumping of single-shell tanks to double-shell tanks.
- (7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC. These instrument changes are made when the automatic FIC is out of service and the reading from the manual tape is used for reporting purposes. The reported reading reverts back to the automatic FIC when it is repaired.
- (8) Water is periodically added to 105-C and 106-C to provide evaporative cooling. Losses due to evaporation are calculated assuming all losses are evaporative losses. Drywell monitoring for leak detection is done monthly on tank 105-C. Some drywells are monitored weekly and some are monitored every two weeks on tank 106-C. If there are any indications of a leak from these tanks, the assumption that all losses are due to evaporation will be reevaluated.

TABLE D-1. Performance Summary (Sheet 3 of 3)

WASTE VOLUME REDUCTION

- (9) Currently inoperative. These evaporator systems (242-B and 242-T) were installed in 1952 in each of the two operating areas to remove water from the waste, and ran for approximately 4 yr after which both units were shut down. The 242-T Evaporator was reactivated in December 1965, and shut down again in April 1976.
- (10) Currently inoperative. These two in-tank solidification (ITS) units provided in-tank heating to promote in-tank boiling or evaporation. The ITS Unit 1 started up March 1965, and ITS Unit 2 started up February 1968. In August 1971, ITS Unit 1 was converted from an evaporator to a cooler for ITS Unit 2. Both units were shut down June 1974.
- (11) Currently inoperative. The 242-S Evaporator-Crystallizer was started up November 1973, and shut down March 1980, when its processing campaign was completed. It is in standby mode with no future mission. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals.
- (12) Currently inoperative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and has remained shut down for subsequent upgrading. The restart schedule specifies January 4, 1993, as the projected start-up date. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake).
- (13) Currently inoperative. Additional concentration of wastes was completed by using the concentrators at REDOX and B Plant. The REDOX concentrator was used from July 1967 to June 1972, while the B Plant concentrator was used from July 1967 to February 1968.
- (14) Waste generated for training and testing purposes prior to Evaporator restart.

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APPENDIX E

**LIQUID STATUS AND PUMPABLE LIQUID
REMAINING IN TANKS**

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TABLE E-1. LIQUID STATUS AND PUMPABLE LIQUID
REMAINING IN TANKS

WASTE VOLUMES (Kgallons)

October 1992

TANK FARMS	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST				
A	8	439	442	390
AN	5512	37	5549	N/A
AP	6345	0	6345	N/A
AW	4191	159	4350	N/A
AX	3	370	373	304
AY	1418	2	1420	N/A
AZ	1723	4	1727	N/A
B	15	164	179	80
BX	50	155	205	135
BY	0	780	780	598
C	169	143	312	254
Total	19434	2253	21682	1761
WEST				
S	46	1399	1445	1192
SX	63	1261	1324	1178
SY	801	237	1038	N/A
T	74	189	263	208
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1160	4505	5665	3682
TOTAL	20594	6758	27347	5443 (1)

(1) Volume based on 12.5% (sludge waste) and 45% (saltcake waste) liquid in solid (porosity) value. This is a conservative (high) estimate.

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

N/A = Not applicable

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APPENDIX F
PUMPING RECORD

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TABLE F-1. PUMPING RECORD

(Kgallons)

October 1992

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE
EAST			
A	0.0	0.0	150.5
AN	N/A	N/A	N/A
AP	N/A	N/A	N/A
AW	N/A	N/A	N/A
AX	0.0	0.0	13.0
AY	N/A	N/A	N/A
AZ	N/A	N/A	N/A
B	0.0	0.0	0.0
BX	0.0	0.0	68.9
BY	0.0	0.0	1387.4 *
C	0.0	0.0	36.8 **
Total	0.0	0.0	1656.6
WEST			
S	0.0	0.0	791.0
SX	0.0	0.0	113.2
SY	N/A	N/A	N/A
T	0.0	0.0	0.0
TX	0.0	0.0	1205.7
TY	0.0	0.0	29.9
U	0.0	0.0	0.0
Total	0.0	0.0	2139.8
TOTAL	0.0	0.0	3796.4

NA = Not Applicable

* The total volume pumped was adjusted by the Single-Shell Tanks Engineer to account for the 14% miscalibration of the constant velocity transmitter and the amount of flush water used. DIL, DLR and PLR volumes were recalculated, based on the observed porosity in 102-BY and 109-BY.

** The total volume pumped was recalculated by the Single-Shell Tanks Engineer based on the surface level readings taken after shutdown of the saltwell pumps on January 28, 1992, in 102-C, 107-C and 110-C.

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APPENDIX G
CATCH TANKS AND SPECIAL
SURVEILLANCE FACILITIES

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TABLE G-1. EAST AND WEST AREA CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

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

October 1992

VOLUME OF		CONTENTS MONITORED		REMARKS
FACILITY	LOCATION	PURPOSE (receives waste from:)	BY	
(Gallons)				
EAST AREA				
A-302-A	A FARM	151-A DB	212	CASS/FIC PUMPED 08/11/92
311-ER	B PLANT	151-ER, 152-ER DB	3456	CASS/FIC PUMPED 05/29/91
152-AX	AX FARM	152-AX DB	2228	MANUALLY DIAL O/S, USING ZIP CORD, PUMPED 08/29/92
151-AZ	AZ FARM	152-AZ DB, AZ LOOP SEAL	4550	CASS/FIC VOLUME CHANGES DAILY
154-AZ	AZ FARM	102-AZ HTG COIL STEAM CONDENSATE	0	CASS/MT AUTOMATIC PUMP
244-BX-TK/SMP	BX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	6364	MANUALLY USING MANUAL TAPE FOR TANK
244-A-TK/SMP	AR VAULT	DCRT - RECEIVES FROM SEVERAL FARMS	3047	MCS DIRECT GAL READING
204-AR	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	565	DIP TUBE ALARMS ON CASS
417-A	A FARM	702-A PROCESS CONDENSATE	22420	DIP TUBE
Vent Station		CROSS COUNTRY TRANSFER LINE	O/S	MT
WEST AREA				
TX-302-C	TX FARM	154-TX DB	3060	CASS/FIC FIC REPAIRED
U-301-B	U FARM	151-U, 152-U, 153-U, 252-U DB	5939	CASS/FIC
UX-302-A	U PLANT	154-UX DB	9155	CASS/MFIC
241-S-304	S FARM	151-S DB	804	FIC OPERATIONAL 10/91, REPLACED S-302-A
244-S-TK/SMP	S FARM	DCRT - RECEIVES FROM SEVERAL FARMS	8162	MANUALLY CWF
244-TX-TK/SMP	TX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	17979	MANUALLY CWF

Total active facilities 16

LEGEND: DB - Diversion Box
 DCRT - Double-Contained Receiver Tank
 FIC - Food Instrument Corporation
 MFIC - Manual FIC
 MT - Manual Tape
 O/S - Out of Service
 CWF - Weight Factor/SpG = Corrected Weight Factor
 CASS - Computer Automated Surveillance System
 MCS - Monitor and Control System

TABLE G-2. EAST AREA CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

INACTIVE - no longer receiving waste transfers
October 1992

VOLUME
OF

FACILITY	LOCATION	RECEIVED WASTE FROM:	CONTENTS		MONITORED		REMARKS
			(Gallons)	BY	BY		
A-302-B	A FARM	152-A DB	3140	CASS/MT			ISOLATED 1985, PROJECT B-138 INTERIM STABILIZED 1990
B-301-B	B FARM	151-B, 152-B, 153-B, 252-B DB	UNKNOWN	NM			ISOLATED 1985(1)
B-302-B	B FARM	154-B DB	UNKNOWN	NM			ISOLATED 1985(1)
BX-302-A	BX FARM	152-BR, 153-BX, 152-BXR, 152-BYR DB	UNKNOWN	NM			ISOLATED 1985(1)
BX-302-B	BX FARM	154-DB	UNKNOWN	NM			ISOLATED 1985(1)
BX-302-C	BX FARM	155-B DB	UNKNOWN	NM			ISOLATED 1985(1)
C-301-C	C FARM	151-C, 152-C, 153-C, 252-C DB	UNKNOWN	NM			ISOLATED 1985(1)
241-CX-70	HOT SEMI-	TRANSFER LINES	UNKNOWN	NM			ISOLATED, DECOMMISSION PROJ.
241-CX-72	WORKS	TRANSFER LINES	UNKNOWN	NM			SEE DWG H-2-95-501, 2/5/87
244-AR	A COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	UNKNOWN	NM			BEING UPGRADED
001-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM			INTERIM STABILIZED 1985(1)
002-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM			INTERIM STABILIZED 1985(1)
003-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM			INTERIM STABILIZED 1985(1)
011-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM			INTERIM STABILIZED 1985(1)
361-B-TANK	B PLANT	DRAINAGE FROM B-PLANT	UNKNOWN	NM			INTERIM STABILIZED 1985(1)

Total East Area inactive facilities 15

LEGEND: DB - Diversion Box
DCRT - Double-Contained Receiver Tank
MT - Manual Tape
CASS - Computer Automated Surveillance System
NM - Not Monitored

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

TABLE G-3. WEST AREA CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

INACTIVE - no longer receiving waste transfers
October 1992

VOLUME
OF
CONTENTS

FACILITY	LOCATION	RECEIVED WASTE FROM:	BY	REMARKS
S-302	S FARM	240-S-151 DB	CASS/FIC	ASSUMED LEAKER EPDA 85-04
S-302-A	S FARM	241-S-151 DB	CASS/FIC	ASSUMED LEAKER TF-EFS-90-042
				PARTIALLY FILLED WITH GROUT 2/91
				DETERMINED STILL ASSUMED LEAKER
				AFTER LEAK TEST
S-302-B	S FARM	S ENCASEMENTS	NM	ISOLATED 1985(1)
SX-304(302)	SX FARM	152-SX TRANSFER BOX, 151-SX DB	NM	ISOLATED 1985(1)
TX-302	TX FARM	153-TX DB	NM	ISOLATED 1985(1)
TX-302-X-B	TX FARM	TX ENCASEMENTS	NM	ISOLATED 1985(1)
TX-302-B	TX FARM	155-TX DB	CASS/MT	WORK REQ. ISSUED TO REPLACE O/S MT
TY-302-A	TY FARM	153-TX DB	NM	ISOLATED 1985(1)
TY-302-B	TY FARM	TY ENCASEMENTS	NM	ISOLATED 1985(1)
001-UR-TK/SMP	U FARM	TRANSFER LINES	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
002-UR-TK/SMP	U FARM	TRANSFER LINES	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
003-UR-TK/SMP	U FARM	TRANSFER LINES	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
001-TXR-TK/SMP	TX FARM	TRANSFER LINES	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
002-TXR-TK/SMP	TX FARM	TRANSFER LINES	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
003-TXR-TK/SMP	TX FARM	TRANSFER LINES	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
361-T-TANK	T PLANT	DRAINAGE FROM T-PLANT	NM	ISOLATED 1985(1)
361-U-TANK	U PLANT	DRAINAGE FROM U-PLANT	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-U-TK/SMP	U FARM	DCRT - RECEIVES FROM SEVERAL FARMS	NM	NOT YET IN USE

Total West Area inactive facilities 19

LEGEND: DB - Diversion Box

DCRT - Double-Contained Receiver Tank

FIC - Food Instrument Corporation

MT - Manual Tape

O/S - Out of Service

CASS - Computer Automated Surveillance System

NM - Not Monitored

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

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APPENDIX H
LEAK VOLUME ESTIMATES

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

Tank No.	Date Declared Confirmed or Assumed Leaker (3)		Volume (2) (Gallons)	Associated Curies 137 cs	Interim Stabilized Date	Leak Estimate	
						Updated	Reference
241-A-103	1987		5500 (10)		8/88	1987	(j)
241-A-104	1975		2500		9/78	1983	(a)
241-A-105 (1)	1963		10000 to 277000	85000 to 760000 (b)	7/79	1991	(b),(c)
241-AX-102	1988		3000 (10)		9/88	1989	(h)
241-AX-104	1977		-- (8)		8/81	1989	(g)
241-B-101	1974		-- (8)		3/81	1989	(g)
241-B-103	1978		-- (8)		2/85	1989	(g)
241-B-105	1978		-- (8)		12/84	1989	(g)
241-B-107	1980		8000 (10)		3/85	1986	(d),(f)
241-B-110	1981		10000 (10)		12/84	1986	(d)
241-B-111	1978		-- (8)		6/85	1989	(g)
241-B-112	1978		2000		5/85	1989	(g)
241-B-201	1980		1200 (10)		8/81	1984	(e),(f)
241-B-203	1983		300 (10)		6/84	1986	(d)
241-B-204	1984		400 (10)		6/84	1989	(g)
241-BX-101	1972		-- (8)		9/78	1989	(g)
241-BX-102	1971		70000	50000 (i)	11/78	1986	(d)
241-BX-108	1974		2500	500 (i)	7/79	1986	(d)
241-BX-110	1976		-- (8)		8/85	1989	(g)
241-BX-111 (7)	1984		-- (8)		N/A	1989	(g)
241-BY-103	1973		<5000		N/A	1983	(a)
241-BY-105	1984		-- (8)		N/A	1989	(g)
241-BY-106	1984		-- (8)		N/A	1989	(g)
241-BY-107	1984		15100 (10)		7/79	1989	(g)
241-BY-108	1972		<5000		2/85	1983	(a)
241-C-101	1980		20000 (10)		11/83	1986	(d)
241-C-110	1984		2000		N/A	1989	(g)
241-C-111	1968		5500 (10)		3/84	1989	(g)
241-C-201 (5)	1988		550		3/82	1987	(i)
241-C-202 (5)	1988		450		8/81	1987	(i)
241-C-203	1984		400 (10)		3/82	1986	(d)
241-C-204 (5)	1988		350		9/82	1987	(i)
241-S-104	1968		24000 (10)		12/84	1989	(g)
241-SX-104	1988		6000 (10)		N/A	1988	(k)
241-SX-107	1964		<5000		10/79	1983	(a)
241-SX-108 (6)	1962		2400 to 35000	<140000 (m)	8/79	1991	(m)
241-SX-109 (6)	1965		<10000	<40000 (n)	5/81	1992	(n)
241-SX-110	1976		5500 (10)		8/79	1989	(g)
241-SX-111	1974		2000	2000 (i)	7/79	1986	(d)
241-SX-112	1969		30000	40000 (i)	7/79	1986	(d)
241-SX-113	1962		15000	8000 (i)	11/78	1986	(d)
241-SX-114	1972		-- (8)		7/79	1989	(g)
241-SX-115	1965		50000	21000 (o)	9/78	1992	(o)
241-T-101	1992		7500 (10)		N/A	1992	(p)
241-T-103	1974		<1000 (10)		11/83	1989	(g)
241-T-106	1973		115000 (10)	40000 (i)	8/81	1986	(d)
241-T-107	1984		-- (8)		N/A	1989	(g)
241-T-108	1974		<1000 (10)		11/78	1980	(f)
241-T-109	1974		<1000 (10)		12/84	1989	(g)
241-T-111 (5)	1984		<1000 (10)		N/A	1980	(f)
241-TX-105 (7)	1977		-- (8)		9/83	1989	(g)
241-TX-107 (6)	1984		2500		10/79	1986	(d)
241-TX-110	1977		-- (8)		4/83	1989	(g)
241-TX-113	1974		-- (8)		4/83	1989	(g)
241-TX-114	1974		-- (8)		4/83	1989	(g)
241-TX-115	1977		-- (8)		9/83	1989	(g)
241-TX-116	1977		-- (8)		4/83	1989	(g)
241-TX-117	1977		-- (8)		3/83	1989	(g)
241-TY-101	1973		<1000 (10)		8/83	1980	(f)
241-TY-103	1973		3000	700 (i)	2/83	1986	(d)
241-TY-104	1981		1400 (10)		1/83	1986	(d)
241-TY-105	1960		35000	4000 (i)	2/83	1986	(d)
241-TY-106	1959		20000	2000 (i)	11/78	1986	(d)
241-U-101	1959		30000	20000 (i)	9/79	1986	(d)
241-U-104 (7)	1961		55000	90 (i)	10/78	1986	(d)
241-U-110	1975		8100 (10)		12/84	1986	(d)
241-U-112 (7)	1980		8500 (10)		9/78	1986	(d)
67 Tanks			<600,000 - 900,000 (9)				

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

FOOTNOTES: SEE NEXT PAGE

TABLE H-1. Single-Shell Tank Leak Volume Estimates
(Sheet 2 of 5)

Footnotes:

- (1) Current estimates (see reference b) are that 610 Kgal of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with *Dangerous Waste Regulations* (Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington), any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated and moved into compliance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgal to 277 Kgal) is based on the following (see References).
- Reference (b) contains an estimate of 5 Kgal to 15 Kgal for the initial leak prior to August 1968.
 - Reference (b) contains an estimate of 5 Kgal to 30 Kgal for the leak while the tank was being sluiced from August 1968 to November 1970.
 - Reference (b) contains an estimate of 610 Kgal of cooling water added to the tank from November 1970 to December 1978 but it was estimated that the leakage was small during this period. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.
 - Reference (c) contains an estimate that 378 to 410 Kgal evaporated out of the tank from November 1970 to December 1978. Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgal of cooling water leakage from November 1970 to December 1978.

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

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

TABLE H-1. Single-Shell Tank Leak Volume Estimates
(Sheet 3 of 5)

- (3) In many cases, a leak was suspected long before it was identified or confirmed. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline," and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked.
- (4) There is an effort currently in progress to reevaluate these leak volume estimates. During the FY 1993 funding reviews, this reevaluation of leak volumes was given a priority which resulted in this activity no longer being funded. The priority versus funding will be reevaluated prior to FY 1994.
- (5) The leak volume estimate date for these tanks is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.
- (6) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicative of a continuing leak or movement of existing radionuclides in the soil. There is no conclusive way to confirm these observations.
- (7) These four tanks also show slight indications of continuing leaks or movement of radionuclides in the soil.
- (8) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (10). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgal (rounded to the nearest 10 Kgal).
- (9) The total has been rounded to the nearest 50 Kgal. Upperbound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.
- (10) Leak volume estimate is based solely on observed liquid level decreases in these tanks. This is considered to be the most accurate method for estimating leak volumes.

TABLE H-1. Single-Shell Tank Leak Volume Estimates.
(Sheet 4 of 5)

References:

- (a) Murthy, K.S., et al, June 1983, *Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site, Washington*, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.
- (b) WHC, 1991a, *Tank 241-A-105 Leak Assessment*, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.
- (c) WHC, 1991b, *Tank 241-A-105 Evaporation Estimate 1970 Through 1978*, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.
- (d) Smith, D. A., January 1986, *Single-Shell Tank Isolation Safety Analysis Report*, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- (e) McCann, D. C., and T. S. Vail, September 1984, *Waste Status Summary*, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.
- (f) Catlin, R. J., March 1980, *Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford*, Hanford Engineering Development Laboratory, Richland, Washington.
- (g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, Westinghouse Hanford Company, Richland, Washington.
- (h) WHC, 1990, *Occurrence Report "Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102,"* WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.
- (i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, *Liquid Level Losses in Tanks 241-C-201, -202 and -204*, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.
- (j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, *Tank 103-A Integrity Evaluation*, Westinghouse Hanford Company, Richland, Washington.
- (k) Campbell, G. D., July 8, 1988, Internal Memorandum to R. K. Welty, *Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104*, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.
- (l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.
- (m) WHC, 1992a, *Tank 241-SX-108 Leak Assessment*, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.
- (n) WHC, 1992b, *Tank 241-SX-109 Leak Assessment*, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.

TABLE H-1. Single-Shell Tank Leak Volume Estimates.
(Sheet 5 of 5)

- (o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.
- (p) WHC-1992d, *Occurrence Report*, "Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing," RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.

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