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Tank Farm Surveillance and Waste Status Summary Report for November 1991

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
February 1992

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APPROVAL

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TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR NOVEMBER 1991

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. The intent of the report is to provide data on each of the existing 177 large underground waste storage tanks and 49 smaller catch tanks and special surveillance facilities, and to provide supplemental information regarding tank surveillance anomalies and ongoing investigations.

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

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TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR NOVEMBER 1991

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	66 single-shell	09/88
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, 56 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 the *National Defense Authorization Act for Fiscal Year 1991*, Public Law 101-510, Section 3137, November 5, 1990.

[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 buildup and release of gas beneath the crusted surface. An investigation into solutions to the slurry growth problems is ongoing. Multiple Event Fact Sheets, a Critique Report, Occurrence Reports, Discrepancy Reports, and Unusual Occurrence Reports have been issued. The automatic Food Instrument Company (FIC) has been out of service since August 20, 1991, and the surface level is being measured with the manual tape and radar gauge. **The manual tape measurement showed a steady increase during October and November 1991 from 413.50 to 425.50 in.** In-tank videos show a crystal growth on the tip of the manual tape pencil plummet. This could account for some of the increase observed in the surface level measurement. **The radar gauge showed a steady increase with fluctuations in the surface level measurement from 413.50 to 416.07 in. for November 1991.**

Potential or Assumed Leaks:

None.

Potential or Assumed Intrusions:

The following tanks are on report for potential in-leakage (intrusions) from known/unknown sources. Tanks are taken off this list if they remain stable for over 12 months.

Tank 241-TX-115. The Liquid Observation Well (LOW) scans revealed an Interstitial Liquid Level (ILL) increase 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. An Event Fact Sheet was issued on January 9, 1990. The ILL showed an increase of 0.4 ft on March 1, 1991. The increase was verified on March 11, 1991. Engineering Testing is conducting an intrusion investigation for this tank. 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 November 1, 1991.**

Tank 241-S-107. A slow increase in the surface level has been observed since May 1987, but it has not exceeded the 2.00-in. increase criteria. The surface level measurement increased 1.10 in. in September 1991, during the installation of a saltwell screen. The reference baseline was adjusted to reflect this water addition. **The surface level measurement has increased 0.10 in. since the baseline adjustment.** This tank will remain under close surveillance for further unexplained surface level increases. This tank is reported on the Alert List.

HIGHLIGHTS

1. Saltwell Pumping

Saltwell pumping resumed in 109-BY on November 21 and continued in 102-BY in November 1991. Saltwell pumping was started in 102-C and 107-C on November 19, and in 110-C on November 27, 1991. Changes in liquids and solids can be found in Appendix C (Inventory and Status by Tank, Single-Shell Tanks) and the Changes section immediately following Appendix C.

2. Interim Stabilization of Single-Shell Tanks

Milestone M-05-00 of the *Hanford Federal Facility Agreement and Consent Order* (1989, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington) established requirements for completion of interim stabilization of Hanford single-shell tanks. Table 9 indicates the jet pump duration to interim stabilize the remaining single-shell tanks. (Reference letters 91055878 R1, H. D. Harmon to R. E. Gerton, DOE-RL, *Single-Shell Tank (SST) Interim Stabilization Activities*, dated November 27, 1991, and 9152682 R3, R. E. Raymond to R. E. Gerton, DOE-RL, *Jet Pump Duration to Interim Stabilize*

Remaining Single-Shell Tanks, dated November 11, 1991, Westinghouse Hanford Company, Richland, Washington.)

Changes to this Report:

1. Summary

Table 2 (Tanks Containing Ferrocyanide)--footnotes have been expanded to show the operational condition of individual thermocouples in the FeCN tanks.

Table 8 (Core Sampling Information Summary) has been added to show core sampling history dating back to July/August 1985. Only the last year of data will be shown in subsequent issues of the Monthly Summary.

Table 9 (Jet Pump Duration to Interim Stabilize Remaining Single-Shell Tanks) has been added to indicate the predicted number of pump days required to interim stabilize the tanks.

Figure 1 (Current Integrated Core Sample Operations Schedule) has been added. This schedule presents an up-to-date projection of five months of core sampling activity. Major milestone M-10-00 of the *Hanford Federal Facility Agreement and Consent Order* requires that a minimum of two core samples be taken and analyzed for each single-shell tank.

2. Appendix B (Tank Farm Configuration, Status, and Facility Charts)

Figures B-1 and B-2 (Single- and Double-Shell Tank Instrumentation Configuration Charts) have been revised to provide a three-dimensional effect.

Figure B-7 (Tank Farm Facilities - Quick Reference) has been revised to include waste contents in the tanks, Ferrocyanide, Hydrogen, Organic Salts, etc. (color-coded).

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). Tables 2 through 5 give more information on these tanks.

November 1991

Single-Shell Tanks		Single-Shell Tanks		Single-Shell Tanks	
Tank No.	Category	Tank No.	Category	Tank No.	Category
101-A	Hydrogen	108-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 3)

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

Temperatures in these tanks did not exceed the maximum temperature criteria or surveillance frequency limits for the month of November 1991. All Watch List tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temperature (5) Reading this Month (F.)	Date	Probe (4) Position	FeCN(1) (x1000 gm mole)	Estimated Heat Load (2) (Btu/hr)	(kW)	Assumed Leak Date	Interim Stabilized Date
102-BX	69	11/02/91	TC#1	0-3	<10000	<2.93	1971	11/78
106-BX	68	11/17/91	TC#3	0-1	<10000	<2.93	Sound	N/A
110-BX	69	11/09/91	TC#3	0-1	<10000	<2.93	1976	8/85
111-BX	70	11/24/91	TC#3	0-1	<10000	<2.93	1984	N/A
101-BY	75	11/24/91	TC#1	0-1	8200	2.40	Sound	5/84
103-BY	81	11/02/91	LOW	0-1	8600	2.52	1973	N/A
104-BY	129	11/24/91	TC#1	100-200	5500-8000	1.61-2.35	Sound	1/85
105-BY	114	11/24/91	TC#1	70-100	37700	11.04	1984	N/A
106-BY	129	11/24/91	TC#1	30	12200	3.58	1984	N/A
107-BY	83	11/24/91	TC#1	30-80	14500	4.25	1984	7/79
108-BY	101	11/24/91	TC#2	30-70	23000	6.74	1972	2/85
110-BY	121	11/02/91	TC#2	50-90	25200	7.39	Sound	1/85
111-BY	86	11/17/91	LOW	0-3	34200	10.02	Sound	1/85
112-BY	80	11/24/91	LOW	2-3	<10000	<2.93	Sound	5/85
108-C	78	11/23/91	TC#1	9-20	<10000	<2.93	Sound	3/84
109-C	81	11/23/91	TC#1	30-50	<10000	<2.93	Sound	11/83
111-C	76	11/30/91	TC#4	10-30	<10000	<2.93	1968	3/84
112-C	85	11/23/91	TC#1	50-70	<10000	<2.93	Sound	9/90
101-T	80	11/10/91	TC#8	0-10	<10000	<2.93	Sound	N/A
107-T (5)	76	11/10/91	TC#11	0-5	<10000	<2.93	1984	N/A
118-TX (3)	80	11/02/91	TC#2	0-3	4900	1.44	Sound	4/83
101-TY	73	11/10/91	TC#3	0-30	<10000	<2.93	1973	8/83
103-TY	70	11/16/91	LOW	0-30	<10000	<2.93	1973	2/83
104-TY	72	11/10/91	TC#1	0-20	<10000	<2.93	1981	1/83
24 Tanks		Legend: TC - Thermocouple Tree			N/A - Not Applicable (not yet Interim Stabilized)			
		LOW - Liquid Observation Well. A single thermocouple is positioned in the well.						

FOOTNOTES: See next page

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

FOOTNOTES:

(1) The "old estimate" amounts of FeCN in the tanks were estimated using the Track Radioactive Components (TRAC) program and memo report, L. L. Burger, PNL, Complexant Stability Investigation, Task 1, Ferrocyanide Solids, PNL-5441, dated 1984. The "new estimates" 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.

(2) The estimated heat generation rates were obtained from memo report, W. S. Lewis and A. T. Alstad to S. J. Joncus, "Replacement of Defective Thermocouples in Single-Wall Tanks," dated July 23, 1986. 104-BY only estimated per WHC-SD-WM-ER-083 REV 1, "SST 104-BY Thermal Hydraulic Analysis," June 1991 (kW = 3412 Btu/h)

(3) This tank also contains a high concentration (>3% wt) of organic salts

(4) 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. 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.

(5) An engineering evaluation completed in October 1991 indicated the operational condition of the following individual thermocouples as Good, Acceptable, Marginal, or Failed. The highest temperature reading, if Good, Acceptable, or Marginal, is used. Failed is not used.

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 - Marginal #2 thru 14 - Good	12 TCs connected to switch
101-BY	#1,2,3, 5 thru 14 Good #4 - Marginal	14 TCs connected to switch
103-BY	#1 thru 14 Good	Extension wire failed - Readings taken in LOW by Instrument Technician. Repair order issued.
104-BY	#1 thru 6 - Acceptable	6 TCs connected to switch. New tree installed in 1983
105-BY	#1 thru 6 - Good	6 TCs connected to switch. New tree installed in 1983
105-BY	#1 thru 9, 12 thru 14 Good #10, 11 - Failed	11 TCs connected to switch. Disconnected in 1983 when new tree installed in Riser 10C. This tree is not taken manually.

Continued next page

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

Tank No.	Thermocouple Condition	Comments
106-BY	#1 thru 6 – Acceptable	6 TCs connected to switch. New tree installed in 1983
107-BY	#1, 4, 5, 11, 13, 14 – Marginal #2, 3, 6 thru 10, 12 – Failed	14 TCs connected to two switches
108-BY	#1, 6, 9 – Failed #2, 3 – Marginal #4, 5, 7, 8, 10 – Acceptable	10 TCs, no switch
110-BY	#1 thru 6 – Good	6 TCs connected to switch. New tree installed in 1983
111-BY		No tree – readings taken in LOW by Instrument Technician
112-BY		No tree – readings taken in LOW by Instrument Technician
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
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
101-T	#1, 3 – Failed #2, 4 thru 11 Acceptable	11 TCs connected to switch Readings taken by Instrument Technician
107-T	#1 thru 4 – Failed #5 thru 10 – Acceptable #11 – Marginal	11 TCs connected to switch Readings taken by Instrument Technician in vapor space
118-TX	#1 thru 5, 7 thru 14 – Good #6 – Marginal	14 TCs connected to switch
101-TY	#1 thru 10, 12 thru 14 – Acceptable #11 – Marginal	12 TCs, no switch. Readings taken by Instrument Technician
103-TY	#1 thru 13 – Failed #14 – Acceptable	12 TCs, no switch. Readings taken in LOW by Instrument Technician
104-TY	#1 thru 14 – Marginal	12 TCs, no switch. Readings taken by Instrument Technician

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 radiological 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 November 1991. All Watch List tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temperature Reading this Month (F.)	Date	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
101-A	152	11/30/91	Weekly	SOUND	N/A
101-AX	139	11/14/91	Weekly	SOUND	N/A
103-AX	117	11/14/91	Weekly	SOUND	8/87
102-S (3)	111	11/09/91	Weekly	SOUND	N/A
111-S	96	11/09/91	Weekly	SOUND	N/A
112-S	88	11/10/91	Weekly	SOUND	N/A
101-SX	145	11/09/91	Weekly	SOUND	N/A
102-SX	158	11/09/91	Weekly	SOUND	N/A
103-SX	183	11/09/91	Weekly	SOUND	N/A
104-SX	177	11/15/91	Weekly	1988	N/A
105-SX	190	11/09/91	Weekly	SOUND	N/A
106-SX (3)	112	11/23/91	Weekly	SOUND	N/A
109-SX (2)	156	11/21/91	Weekly	1965	5/81
110-T	69	11/09/91	Weekly	SOUND	N/A
103-U	89	11/16/91	Weekly	SOUND	N/A
105-U	92	11/16/91	Weekly	SOUND	N/A
108-U	89	11/16/91	Weekly	SOUND	N/A
109-U	88	11/09/91	Weekly	SOUND	N/A
103-AN (1)	114	11/25/91	Weekly	SOUND	N/A
104-AN (1)	120	11/18/91	Weekly	SOUND	N/A
105-AN (1)	109	11/25/91	Weekly	SOUND	N/A
101-SY (1)	133	11/25/91	Daily	SOUND	N/A
103-SY (1)	134*	11/15/91	Weekly	SOUND	N/A
23 Tanks					

Note: All readings are taken by Thermocouple Tree
(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
* Defective thermocouple, will be repaired. Maximum temperature in other thermocouples - 113 degrees F.

TABLE 4. 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." Tanks containing organic salts are monitored weekly.

Temperatures in these tanks did not exceed the applicable maximum temperature criteria or surveillance frequency limits for the month of November 1991.
All Watch List tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temperature Reading this month (F.)	Date	Assumed Leaked Date	Interim Stabilized Date
103-B	67	11/03/91	1978	2/85
103-C (3)	128	11/30/91	SOUND	N/A
102-S (1)	110	11/09/91	SOUND	N/A
106-SX (1)	112	11/23/91	SOUND	N/A
105-TX	103	11/27/91	1977	9/83
118-TX (2)	80	11/02/91	SOUND	4/83
106-U	85	11/16/91	SOUND	N/A
107-U	81	11/18/91	SOUND	N/A
8 Tanks				

Note: All readings are taken by Thermocouple Tree
(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

TABLE 5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 BTU/hr)

High heat load tanks are regulated by Safety Analysis Report SD-WM-SAR-006 and Operating Specification Document OSD-T-151-00013, with the exception of laterals beneath 105-A. All high heat load tanks are on active ventilation.

Temperatures in these tanks did not exceed SAR or OSD requirement limits for the month of November 1991. These high heat tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temp. Reading this Month (F.)	Date	Probe Position	Monitoring Frequency	Estimated Heat Load (1) (Btu/hr)	(kW)	Assumed Leaked Date	Interim Stabilized Date
104-A	192	11/21/91	R	Weekly	50000	14.65	1975	9/78
105-A*	132	11/18/91	R	Weekly	50000	14.65	1963	7/79
105-C (2)	99	11/23/91	TC	Monthly	42000	11.72	SOUND	N/A
106-C (2)(3)	165	11/23/91	TC	Weekly	150000	43.96	SOUND	N/A
107-SX	176	11/10/91	TC	Monthly	42000	11.72	1964	10/79
108-SX	203	11/10/91	TC	Monthly	45000	13.19	1962	8/79
109-SX (3)	154	11/10/91	TC	Weekly	50000	14.65	1965	5/81
110-SX	177	11/10/91	TC	Monthly	42000	11.72	1976	8/79
111-SX	194	11/10/91	TC	Monthly	44000	12.90	1974	7/79
112-SX	165	11/10/91	TC	Monthly	43000	12.60	1969	7/79
114-SX	192	11/10/91	TC	Monthly	58000	17.00	1972	7/79
11 Tanks								
						Legend: Probe Position TC=Thermocouple Tree R=Riser		
105-A Laterals	225	11/11/91		Weekly				

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

(1) High heat loads as of 1988, evaluation completed April 20, 1989 (1 kW = 3412 Btu/hr). 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, and 109-SX which has the potential for flammable gas accumulation because other SX tanks vent through it.

* 105-A exhauster out-of-service since October. Work order issued, awaiting parts. Temperatures in 105-A have remained stable. 105-A lateral temperatures have increased <8 degrees F. since exhauster went down.

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

November 1991

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE	
Complexant Concentrate (102-AN, 107-AN, 101-AY, 101-SY, 103-SY)	4.98 Mgal
Concentrate Phosphate (106-AN)	1.02 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	5.10 Mgal
Neutralized Current Acid Waste (101-AZ, 102-AZ)	1.20 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)	10.78 Mgal
NCRW and PFP Settled Solids (103-AW, 105-AW, 102-SY)	1.01 Mgal
	24.29 Mgal

SPACE DESIGNATED FOR SPECIFIC USE	
Spare Tanks (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Segregated Tank Space (102-AN, 107-AN, 103-AW, 101-AY)	0.69 Mgal
Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY)	0.64 Mgal
Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	1.78 Mgal
Miscellaneous Head Space	0.15 Mgal
	5.54 Mgal
TOTAL DOUBLE-SHELL TANK SPACE	
24 Tanks at 1140 Kgal	27.36 Mgal
4 Tanks at 980 Kgal	3.92 Mgal
	31.28 Mgal

Total Available Space	31.28 Mgal
Double-Shell Tank Inventory	- 24.29 Mgal
Space Designated for Specific Use	- 5.54 Mgal
Remaining Unallocated Space	1.43 Mgal

(1) Easily reduced in volume by Evaporator/LERF

(2) Reduced by Saltwell Liquid pumping

Note: Change since last month: Dilute Waste increased 76 Kgal

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

November 1991

Tank No.	Category	Date of Last Automatic FIC Reading	Reading Status	Corrective Action	Monitoring Frequency
109-BY	–	07/04/91	No reading taken since 10/21/91		Weekly
111-S	–	10/28/91	No reading taken since 10/28/91		Weekly
108-SX	IS	07/07/91	No reading taken since 7/7/91	Work Pkg 2W-91-01412-W	Quarterly
112-T	IS	03/16/90	No reading taken since 3/16/90	Work Pkg generic repair T, TX, TY Farms FICs, 2W-91-00071	Quarterly
105-U	–	06/09/91	No reading taken since 11/18/91	Work Pkg pending	Weekly
103-AX	IS	07/18/90	Taking manual FIC readings		Monthly
104-BX	IS	02/25/91	Taking manual FIC readings	Work Pkg 2E-91-000321	Weekly
107-BX	IS	07/04/91	Taking manual FIC readings		Weekly
109-BX	IS	07/04/91	Taking manual FIC readings		Monthly
106-SX	–	09/30/91	Taking manual FIC readings		Weekly
103-T	IS	10/28/91	Taking manual FIC readings		Quarterly
101-TX	IS	11/25/91	Taking manual FIC readings		Quarterly
107-TX	IS	10/04/91	Taking manual FIC readings		Quarterly
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
101-SY	DST	08/23/91	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
311-ER		08/07/91	Taking manual FIC reading		Daily
TX-302-C		08/07/91	Taking manual FIC reading		Daily
U-302-B		11/04/91	No reading taken since 11/04/91		Daily

Legend: IS = Interim Isolated
DST = Double-Shell Tank

TABLE 8. CORE SAMPLING INFORMATION SUMMARY (Page 1 of 5)

DATE SAMPLED	TANK	RISER (CORES)	# SEGMENTS	M-10-00 CORE COUNT (TOTAL=298)	LABORATORY		COMMENTS
					CORE NO.	PRIMARY LAB	
July/Aug 85	101-TY	R-3	3				
July/Aug 85	102-TY	R-5	4*				
July/Aug 85	103-TY	R-8	7				
July/Aug 85	103-TY	R-7	10				
July/Aug 85	103-TY	R-15	3				
July/Aug 85	104-TY	R-5	7				
July/Aug 85	104-TY	R-3	1				
July/Aug 85	104-TY	R-15	1				
July/Aug 85	105-TY	R-8	5				
July/Aug 85	106-TY	R-5	4				
July/Aug 85	106-TY	R-7	3				
Fiscal Year 1985 SST DST Subtotal	 6 0 6	 11 0 11	 48 0 48				
2/14-26/86 2/26/86	104-BX	R-1	3				
2/26/86	104-BX	R-8	2				
3/3/86	105-BX	R-1	2				
3/4/86	105-BX	R-8	2				
3/6/86	102-A	R-4	2				
3/8/86	102-A	R-4	2				
3/11-18/86	106-A	R-17	3				
3/13-17/86	106-A	R-20	3				

TABLE 8. CORE SAMPLING INFORMATION SUMMARY (Page 2 of 5)

DATE SAMPLED	TANK	RISER (CORES)	# SEGMENTS	M-10-00 CORE COUNT (TOTAL=298)	LABORATORY		COMMENTS
					CORE NO.	PRIMARY LAB	
3/20-27/86	103-A	R-17	10				
4/1-3/86	103-A	R-12	11				
4/11/86	105-C	R-8	3				
4/15-16/86	104-C	R-8	6				
4/28/86	102-C	R-2	1				Very Small
5/7/86	103-C	R-2	4				
5/14/86	103-C	R-8	4				
5/19/86	106-C	R-1	4				
5/23/86	104-A	R-14	2				Insufficient Sample
5/30/86	104-A	R-17	1				Insufficient Sample
6/2/86	104-A	R-17	1				Insufficient Sample
6/4/86	104-A	R-7	1				Insufficient Sample For Analysis
6/2/86	105-AW (DST)	13A	10				
6/9-25/86	109-SX	R-3	4				Insufficient Sample
7/10/86	102-C	3A	8				
8/86	103-SY (DST)	17A	12				
9/86	105-AW (DST)	15A	6				
9/86	103-AW (DST)	15A	9				
9/86	101-AW (DST)	13A	2				
FISCAL YEAR 1986 SST DST Subtotal	13 5 18	22 5 27	79 39 118				

TABLE 8. CORE SAMPLING INFORMATION SUMMARY (Page 3 of 5)

DATE SAMPLED	TANK	RISER (CORES)	# SEGMENTS	M-10-00 CORE COUNT (TOTAL=298)	LABORATORY		COMMENTS
					CORE NO.	PRIMARY LAB	
Jan-April 1987	103-AN (DST)	17C	12				
7/87	102-AY (DST)	15N	2				
FISCAL YEAR 1987 SST 0 DST 2 Subtotal 2		0 2 2	0 14 14				
10/25/88	102-SY (DST)	1B	4				
FISCAL YEAR 1988 SST 0 DST 1 Subtotal 1		0 1 1	0 4 4				
1/4/89	103-AW (DST)	16B	10				4 & 5 Resampled 1/29/89
3/16/89	101-AZ (DST)	15F	2				
5/2/89	101-AZ (DST)	24D	2				
7/6/89	102-AZ (DST)	15L	2				
8/7-11/89	110-B	7	5	1	1	PNL	
8/14-18/89	110-B	7	5	2	2	PNL	
8/21-28/89	110-B	5	5	-	3	PNL	
9/10-11/89	110-B	1	5	-	4	PNL	
9/19-11/7/89	110-U	19	4	3	5	222S	
FISCAL YEAR 1989 SST 2 DST 3 Subtotal 5		5 4 9	24 16 40				
11/13-14/89	110-U	17	4	4	6	222S	

TABLE 8. CORE SAMPLING INFORMATION SUMMARY (Page 4 of 5)

DATE SAMPLED	TANK	RISER (CORES)	# SEGMENTS	M-10-00 CORE COUNT (TOTAL=298)	LABORATORY		COMMENTS
					CORE NO.	PRIMARY LAB	
11/15-16/89	110-U	7	4	-	7	222S	
11/17/89	110-U	7	4	-	8	222S	
11/20/89	110-B	3	5	-	9	PNL	
11/21/89	110-B	3	5	-	10	PNL	
11/22-27/89	110-B	3	5	-	11	PNL	
11/29/89	110-U	2	4	-	12	222S	
11/30/89	110-U	2	4	-	13	222S	
12/3/89	110-U	9	4	-	14	222S	
12/4-6/89	110-U	8	4	-	15	222S	
2/21/90	102-SY (DST)	13A	4		16	PNL	
2/21/90	102-SY (DST)	13A	4		17	PNL	Resample Seg 3
4/17/90	110-B	6	5	-	18	PNL	
5/10/90	105-AW (DST)	16B	7		19		
5/24/90	102-AN (DST)	7A	3		20		
5/24/90	102-AN (DST)	7A	3		21		
FISCAL YEAR 1990 SST DST Subtotal	 2 3 5	 11 5 16	 48 21 69				
5/22-26/91	101-SY (DST)	22A	22		22	222S	Window "C"
6/3-5/91	101-SY (DST)	22A	3		23	222S	3 Segments At End Of Window C
6/26-7/8/91	202-B	2	8	5	24	PNL	
7/12-18/91	202-B	5	8	6	25	PNL	
7/23-24/91	201-B	2	8	7	26	222S	

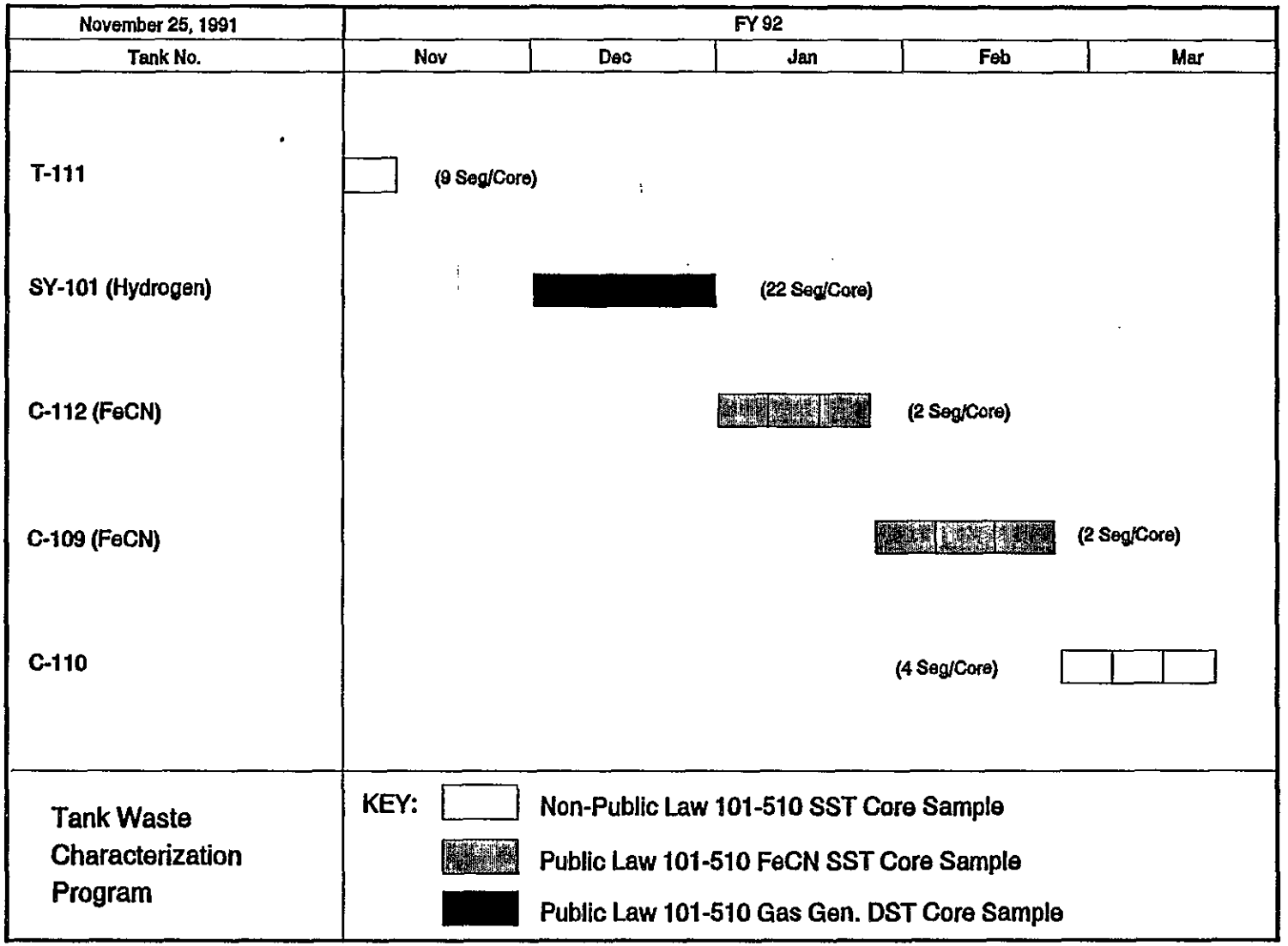
TABLE 8. CORE SAMPLING INFORMATION SUMMARY (Page 5 of 5)

DATE SAMPLED	TANK	RISER (CORES)	# SEGMENTS	M-10-00 CORE COUNT (TOTAL=298)	LABORATORY		COMMENTS
					CORE NO.	PRIMARY LAB	
7/30-8/3/91	201-B	7	8	8	27	222S	
8/4-9/6/91							Waited On 101-SY Window "D" (Assigned Core 28)
9/24-26/91	111-B	3	5	9	29	PNL	
FISCAL YEAR 1991 SST DST Subtotal	 3 1 4	 2 5 7	 37 25 62				
10/2-4/91	111-B	5	5	10	30	PNL	
10/22/91	111-T	6	9	11	31	222S	
10/24-25/91	111-T	2	9	12	32	222S	
11/5-7/91	111-T	3	9	-	33	222S	

TABLE 9. JET PUMP DURATION TO INTERIM STABILIZE REMAINING SINGLE-SHELL TANKS

Tank Number	Sludge (Kgal)	Saltcake (Kgal)	Supernatant (Kgal)	Estimated Pump (Days)
A-101	3	950	0	996
AX-101	3	745	0	761
B-104 (1)	301	69	1	122
B-107 (1)	164	0	1	22
B-110 (1)	245	0	1	56
B-111 (1)	236	0	1	53
BX-106	31	0	15	15
BX-110 (1)	189	9	1	32
BX-111	68	143	19	89
BY-102 (4)	0	417	15	292
BY-103 (2)	5	395	0	350
BY-105	44	459	0	432
BY-106	95	547	0	546
BY-109 (5)	87	354	33	341
C-102 (3)	424	0	3	93
C-103	62	0	133	133
C-105	150	0	0	15
C-106	197	0	32	67
C-107	337	0	0	95
C-110	196	0	5	39
S-101	244	171	12	225
S-102	4	545	0	531
S-103	10	221	17	176
S-106 (2)	32	511	0	414
S-107	293	69	6	123
S-108 (2)	4	600	0	268
S-109 (2)	13	555	0	303
S-110 (2)	131	561	0	265
S-111	139	447	10	20
S-112 (2)	6	631	0	285
SX-101	112	343	1	320
SX-102	117	426	0	452
SX-103	112	523	32	557
SX-104 (2)	136	478	0	500
SX-105	73	610	0	609
SX-106	12	465	61	500
T-101	103	0	30	30
T-102 (1)	19	0	13	13
T-104	442	0	3	143
T-107	171	0	9	33
T-110	376	0	3	115
T-111	456	0	2	148
T-112 (1)	60	0	7	7
U-102	43	313	18	283
U-103	32	423	13	404
U-105	32	349	37	343
U-106	26	185	15	133
U-107	15	360	31	349
U-108	29	415	24	406
U-109	48	396	19	379
U-110 (1)	186	0	0	30
U-111	26	303	0	253

(1) Possible restabilization required.
(2) These tanks are partially pumped. Estimates based on current Liquid Observation Well readings.
(3) 36 inches was added to unpumpable height to allow for shorter screen.
(4) Using observed porosity of 32.5% for saltcake.
(5) Using observed porosity of 43.2% for saltcake, assuming that the sludge layer is on tank bottom.
Note: The amount of pump days are estimates only and are based on an operating efficiency of 60.4%.



The Current Integrated Core Sample Operations Schedule shall be generated on a monthly basis to present an up to date projection of the next 5 months of core sample activity.

Figure 1. Current Integrated Core Sample Operations Schedule

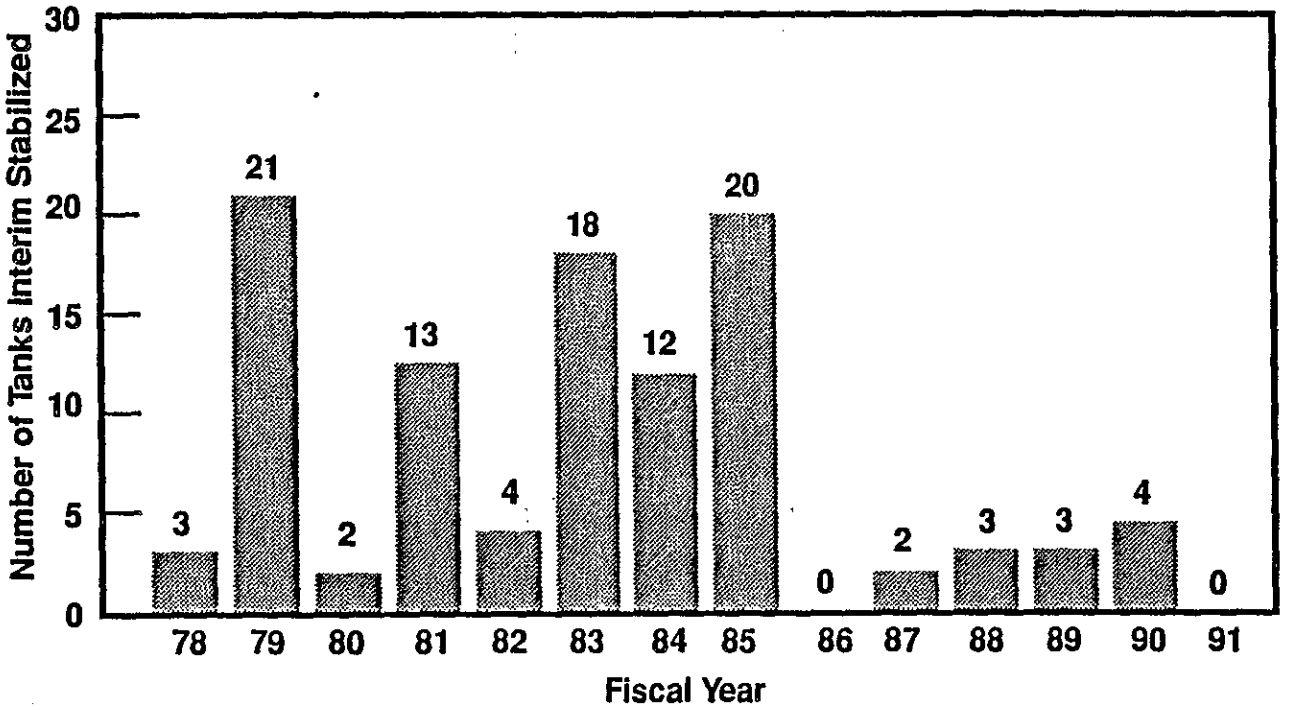


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Figure 1. Single-Shell Tanks Interim Stabilized by Fiscal Year

APPENDIX A

TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS

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TANK AND EQUIPMENT CODE/STATUS DEFINITIONS
November 1991

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)	Characterized by a high content of organic carbon including organic complexants: ethylenediametetra-acetic acid (EDTA), citric acid, N-(hydroxyethyl-ethylene diaminetriacetic acid) (HEDTA), and

	iminodiacetate (IDA) being the major complexants used. Main sources of DC waste are saltwell liquid inventory.
Dilute Non-Complexed Waste (DN)	Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernatant).
Double-Shell Slurry (DSS)	Waste evaporated almost to its sodium aluminate saturation boundary or 6.5 M hydroxide in the evaporator. For reporting purposes, DSS is considered a solid.
Double-Shell Slurry Feed (DSSF)	Waste evaporated just before reaching the sodium aluminate saturation boundary or 6.5 M hydroxide in the evaporator. 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. Classified as transuranic (TRU) waste.
PFP TRU Solids (PT)	TRU solids from West Area operations.
Drainable Interstitial Liquid (DIL)	Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity.
Supernatant	The liquid above the solids in waste storage tanks.

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.

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.

SURVEILLANCE INSTRUMENTATION

Drywells	Drywells are vertical 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.
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 entered into 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. A single thermocouple may be installed in a riser, or lowered down an existing riser or LOW. There are also thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.
In-tank Photography	In-tank photographs are taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs help determine sludge and liquid levels by visual examination.

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

COLUMN HEADING

Total Waste	Solids Volume plus Supernatant liquid.
Supernatant Liquid	Drainable Liquid Remaining minus Drainable Interstitial. Supernatant is usually derived by subtracting the solids level measurement from the liquid level measurement.
Drainable Interstitial	Drainable Liquid Remaining minus Supernatant. 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	Supernatant plus Drainable Interstitial.
Pumpable Liquid Remaining	Drainable Liquid Remaining less undrainable heel volume.

Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs may be used to estimate the volume.
Saltcake	Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs 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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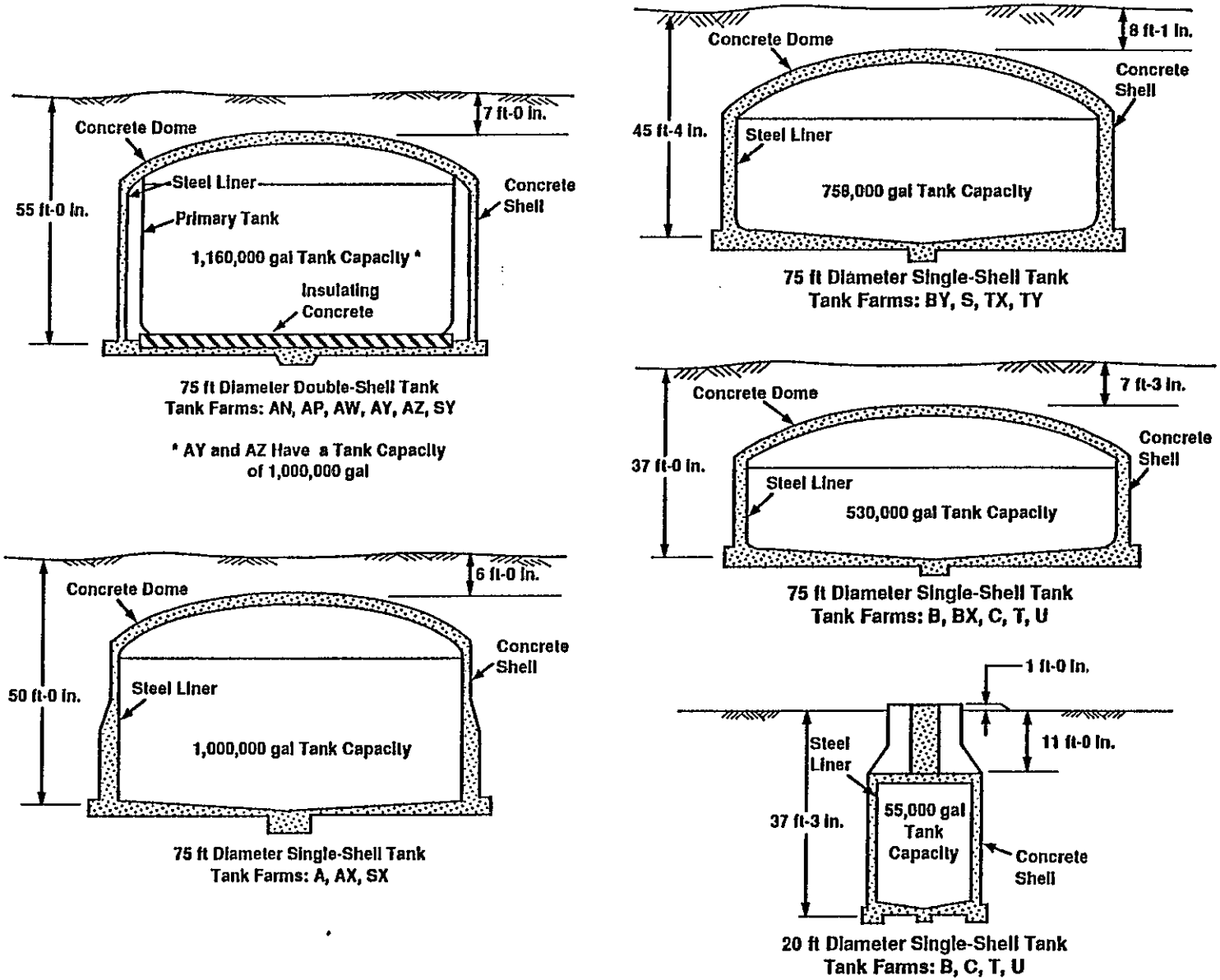

Figure B-1. High-Level Waste Tank Configuration

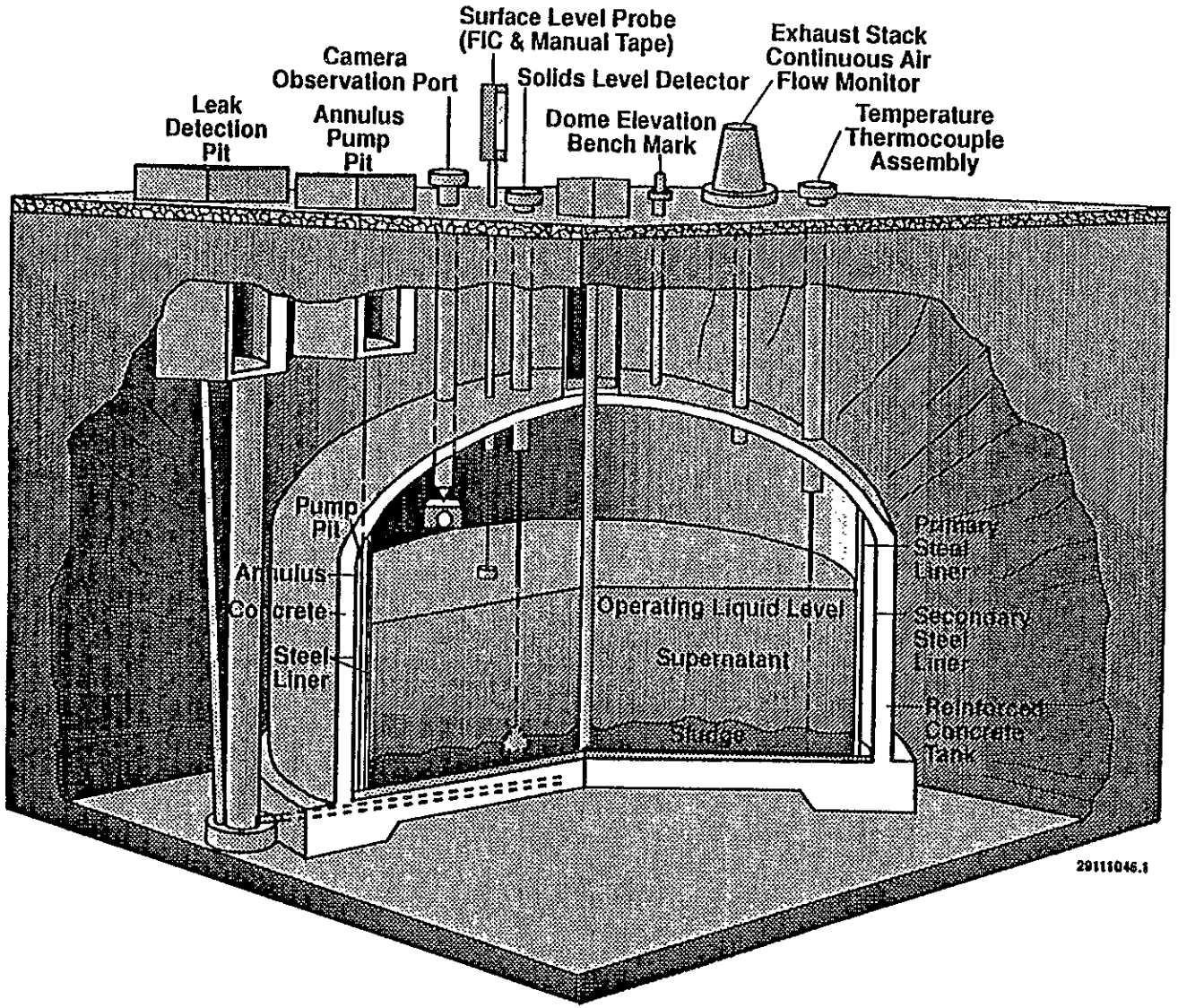

Figure B-2. Double-Shell Tank Instrumentation Configuration

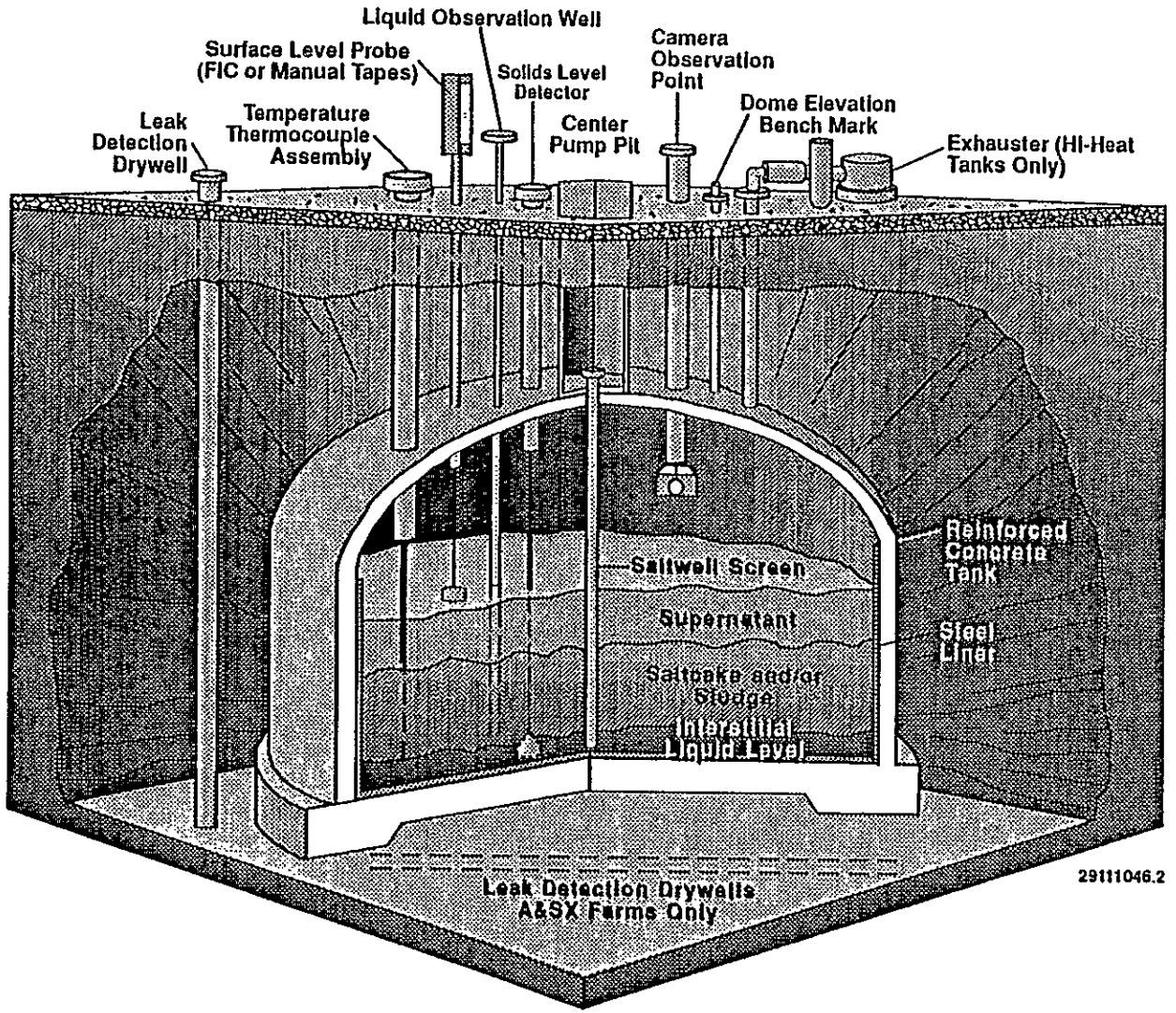

Figure B-3. Single-Shell Tank Instrumentation Configuration

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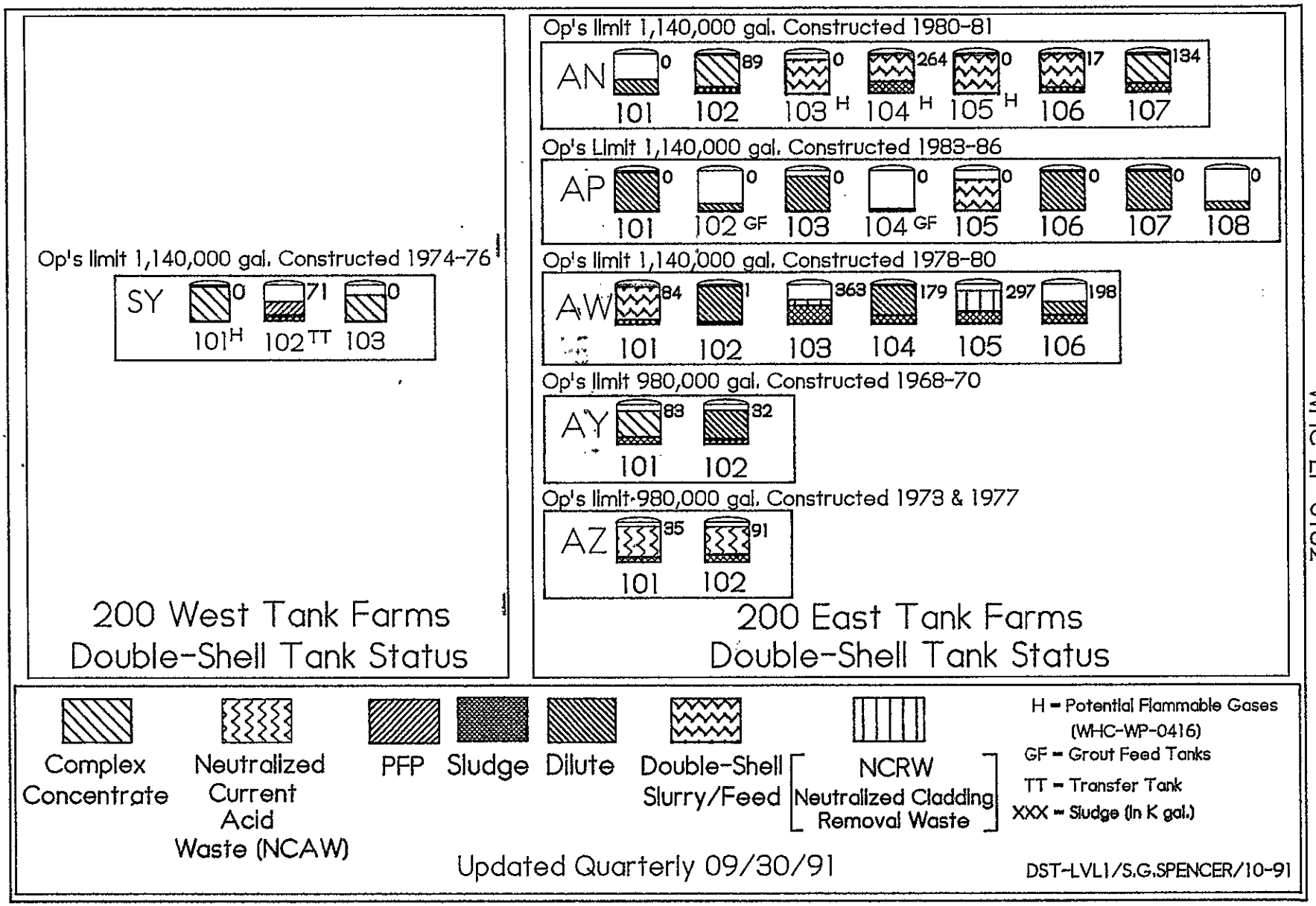

Figure B-4. Double-Shell Tank Status

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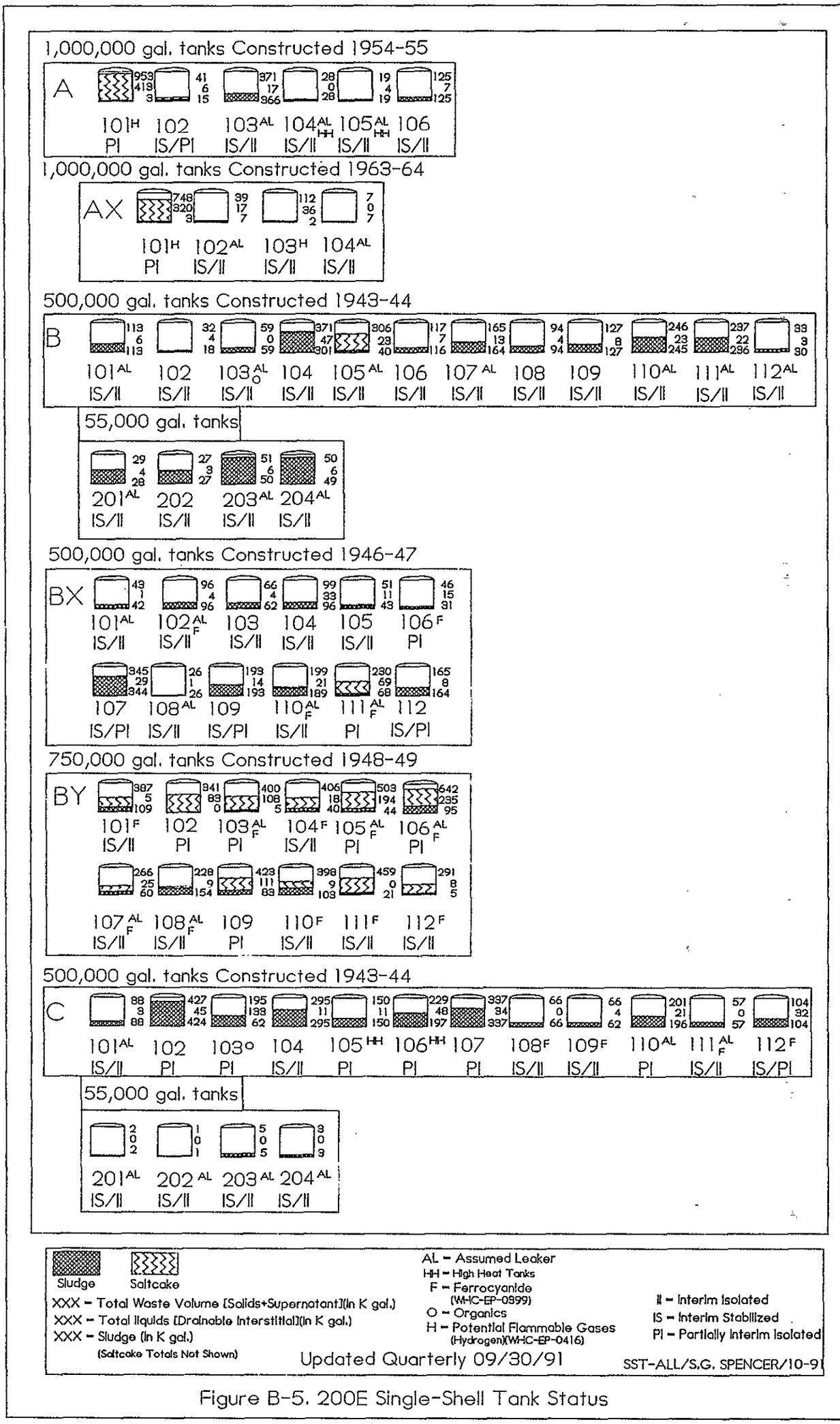

Figure B-5. 200E Single-Shell Tank Status

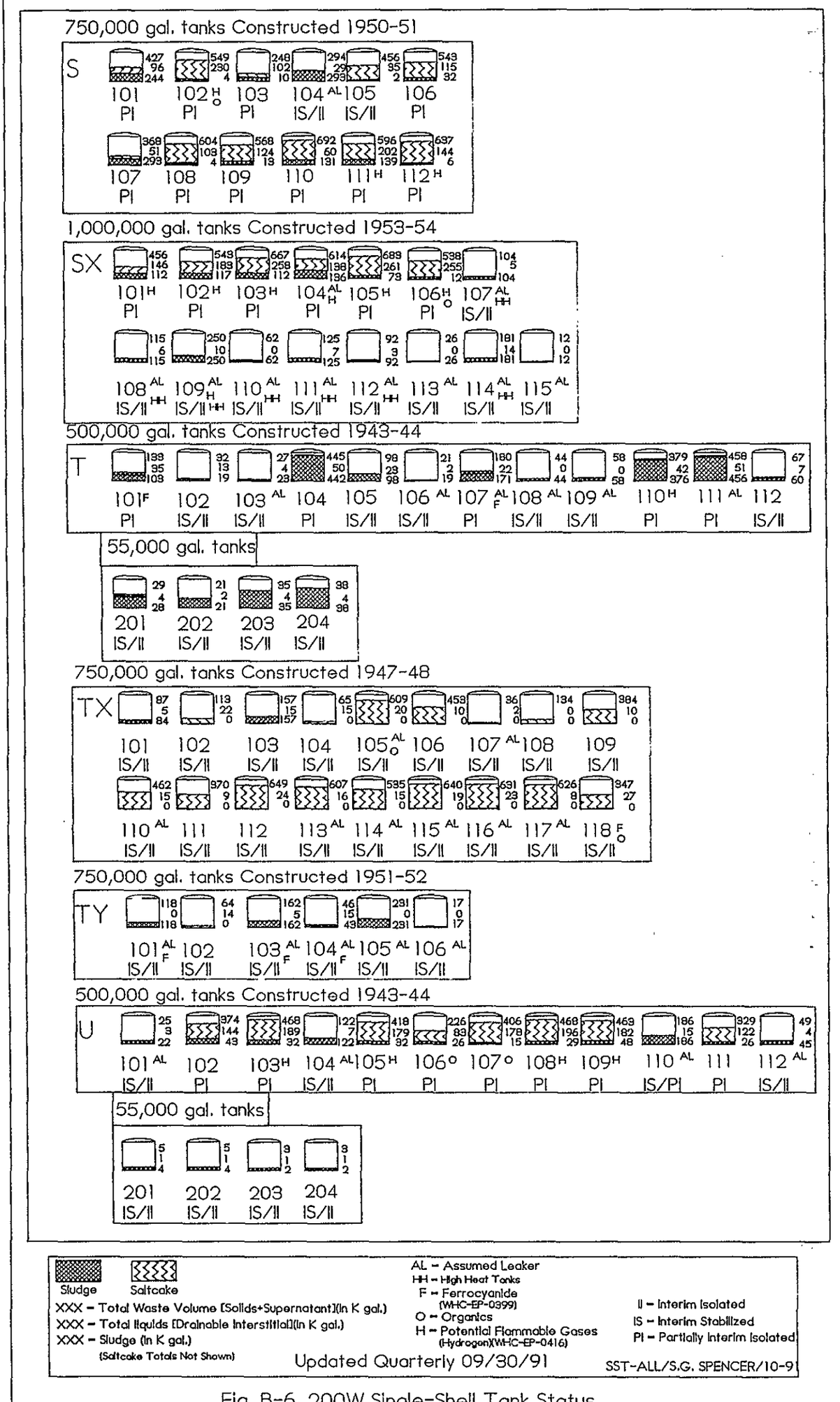

Fig. B-6. 200W Single-Shell Tank Status

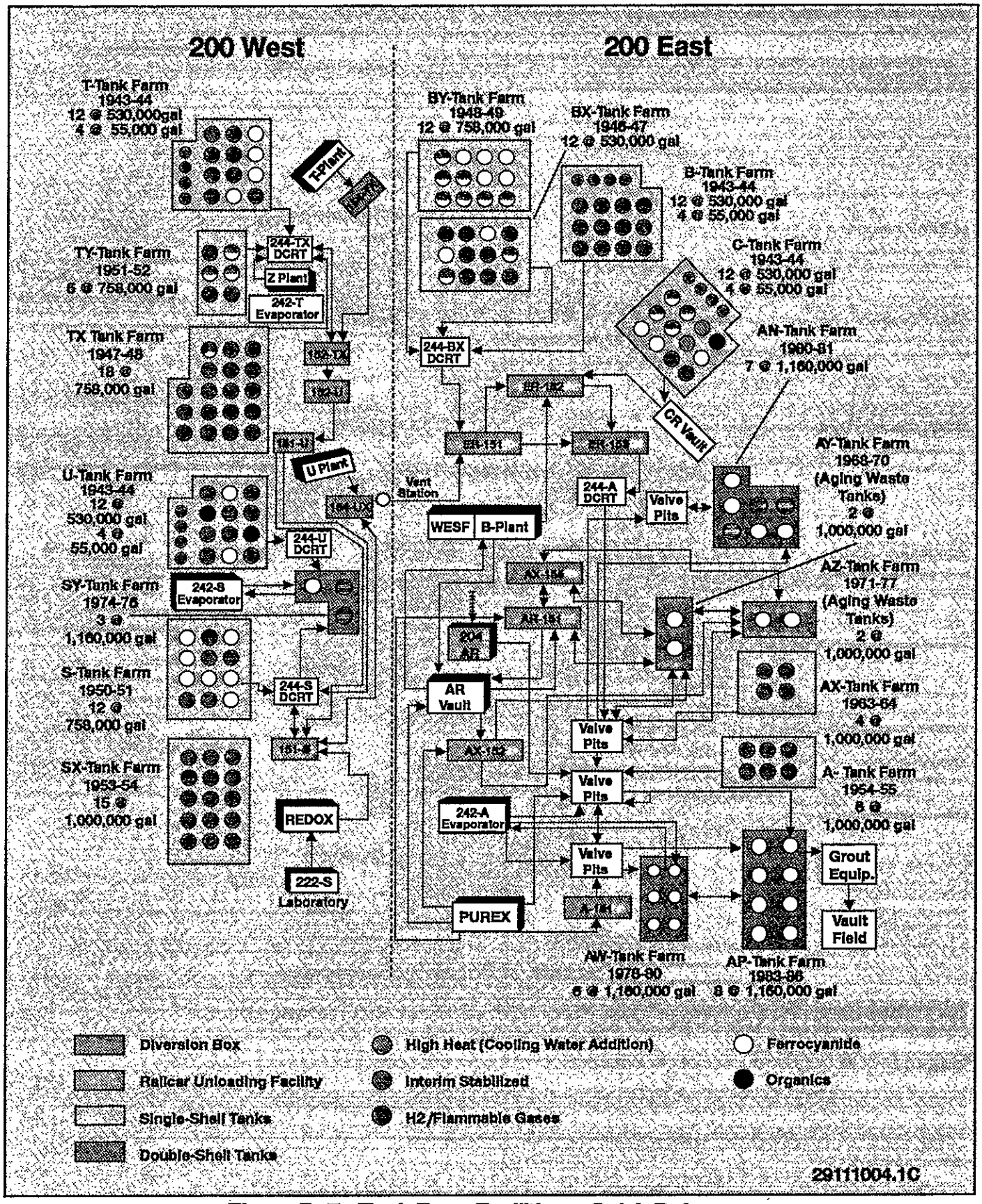

Figure B-7. Tank Farm Facilities – Quick Reference

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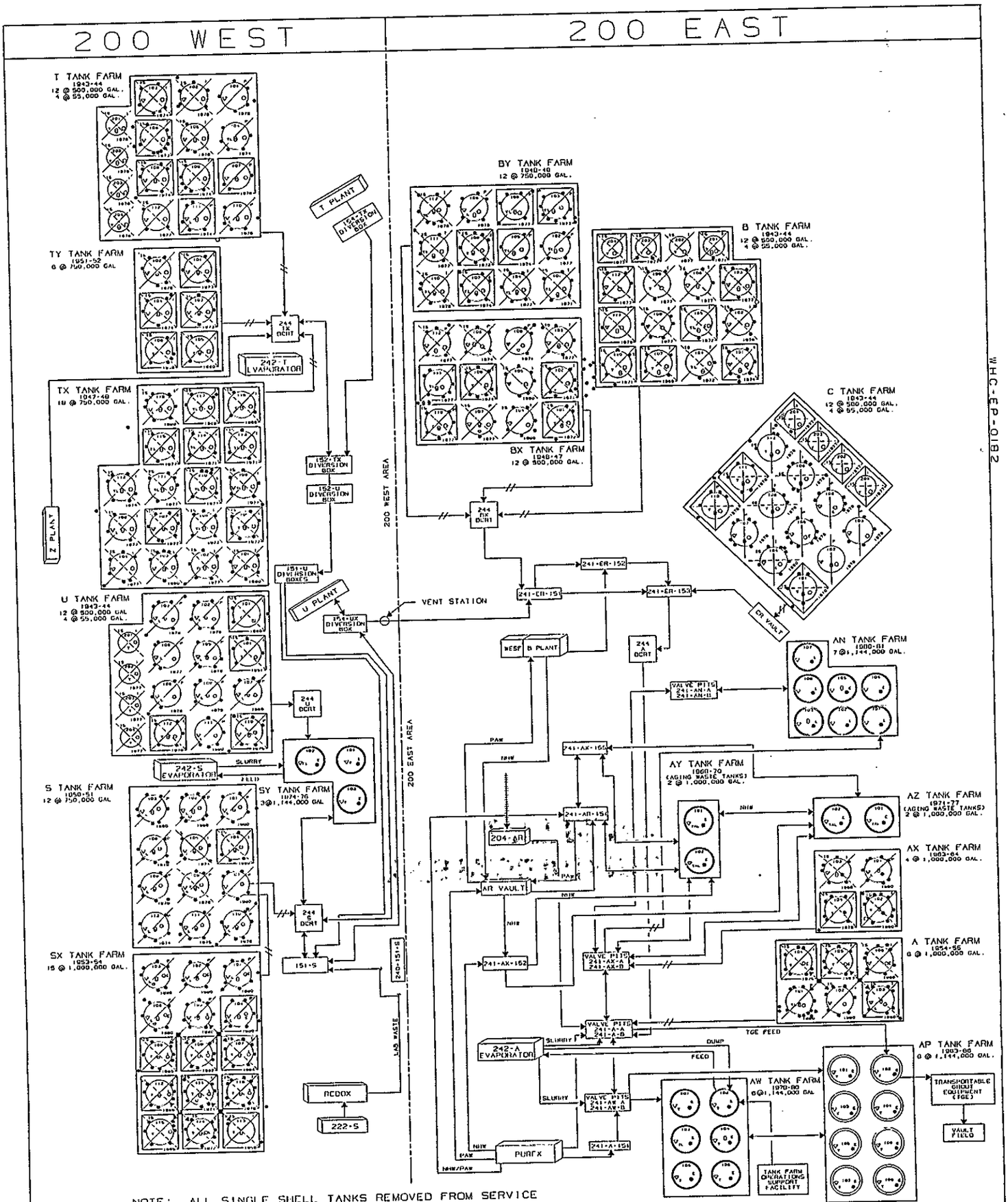

FIGURE B-8. HANFORD TANK FARM FACILITIES, UPDATED QUARTERLY, UPDATED 9/30/91.

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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

November 1991

	200 EAST AREA	200 WEST AREA	TOTAL
IN SERVICE	25	3	28 (2)
OUT OF SERVICE	66	83	149
SOUND	59	52	111
ASSUMED LEAKER	32	34	66
INTERIM STABILIZED (1)	51	54	105
ISOLATED			
PARTIAL INTERIM	21	30	51
INTERIM	45	53	98

WASTE VOLUMES (Kgallons)

		200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AGING	Aging waste	1804	0	1804	0	1804	1804
CC	Complexant concentrate waste	1949	170	2119	3	2116	2119
CP	Concentrated phosphate waste	1001	0	1001	0	1001	1001
DC	Dilute complexed waste	812	1	813	1	812	813
DN	Dilute non-complexed waste	8450	0	8450	0	8450	8450
DN/PD	Dilute non-complex/PUREX TRU solids	893	0	893	0	893	893
DN/PT	Dilute non-complex/PFP TRU solids	0	567	567	0	567	567
DSSF	Double-shell slurry feed	3819	48	3867	56	3811	3867
NCPLX	Non-complexed waste	238	310	548	548	0	548
TOTAL SUPERNATANT		18966	1096	20062	608	19454	20062
SOLIDS							
	Double-shell slurry	937	1134	2071	0	2071	2071
	Sludge	8261	6215	14476	12538	1938	14476
	Saltcake	6577	17654	24231	23471	760	24231
TOTAL SOLIDS		15775	25003	40778	36009	4769	40778
TOTAL WASTE		34740	26099	60840	36617	24222	60840
AVAILABLE SPACE IN TANKS		6144	914	7058	0	7058	7058
DRAINABLE INTERSTITIAL		2319	4499	6818	6382	436	6818
DRAINABLE LIQUID REMAINING		21278	5626	26904	7014	19890	26904

(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

November 1991

TANK FARMS	IN SERVICE	OUT OF SERVICE	SOUND	ASSUMED LEAKER	ISOLATED TANKS PARTIAL	ISOLATED TANKS 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	10	6	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	52	34	30	53	54
TOTAL	28	149	111	66	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)

November 1991

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES									SOLIDS VOLUME			
			AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	DSS	SALT SLUDGE	SALT CAKE	TOTAL
EAST																
A	1536	0	0	0	0	0	0	0	0	8	0	8	0	556	972	1528
AN	6903	1077	0	1946	1001	0	570	0	0	1945	0	5462	937	504	0	1441
AP	6307	2813	0	0	0	0	5481	0	0	826	0	6307	0	0	0	0
AW	5367	1473	0	0	0	0	2116	893	0	1040	0	4049	0	1122	196	1318
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1209	751	0	0	0	812	283	0	0	0	0	1095	0	115	0	115
AZ	1930	30	1804	0	0	0	0	0	0	0	0	1804	0	126	0	126
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1559	0	0	0	0	0	0	0	0	0	50	50	0	1354	155	1509
BY	4744	0	0	0	0	0	0	0	0	0	0	0	0	719	4025	4744
C	2222	0	0	0	0	0	0	0	0	0	173	173	0	2049	0	2049
Total	34740	6144	1804	1949	1001	812	8450	893	0	3819	238	18966	937	8261	6577	15775
WEST																
S	5982	0	0	0	0	0	0	0	0	17	29	46	0	1171	4765	5936
SX	4453	0	0	0	0	1	0	0	0	0	62	63	0	1532	2858	4390
SY	2506	914	0	170	0	0	0	0	567	0	0	737	1134	71	564	1769
T	2065	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	5	5	0	241	6659	6900
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	26099	914	0	170	0	1	0	0	567	48	310	1096	1134	6215	17654	25003
TOTAL	60839	7058	1804	2119	1001	813	8450	893	567	3867	548	20062	2071	14476	24231	40778

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

TABLE C-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
November 1991

TANK STATUS				LIQUID VOLUME									SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPERNATANT LIQUID (Kgal)	DRAINABLE INTERSTIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLDG	SALT CAKE	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT
								++++++	AN FARM STATUS		++++++									
101AN	DN	SOUND	DRCVR	207.1	570	570	570	0	0.0	0.0	570	570	0	0	0	FM	S	08/22/89	0/ 0/ 0	
102AN	CC	SOUND	CWHT	397.8	1094	46	1005	3	0.0	0.0	1008	1005	0	89	0	FM	S	08/22/89	0/ 0/ 0	
103AN	DSS	SOUND	CWHT	345.7	951	189	14	0	0.0	0.0	14	14	937	0	0	FM	S	08/22/89	10/29/87	
104AN	DSSF	SOUND	CWHT	386.6	1063	77	799	25	0.0	0.0	824	802	0	264	0	FM	S	08/22/89	08/19/88	
105AN	DSSF	SOUND	CWHT	411.8	1132	8	1132	0	0.0	0.0	1132	1132	0	0	0	FM	S	10/22/84	01/26/88	
106AN	CP	SOUND	CWHT	370.1	1018	122	1001	0	0.0	0.0	1001	1001	0	17	0	FM	S	08/22/89	0/ 0/ 0	
107AN	CC	SOUND	CWHT	390.9	1075	65	941	9	0.0	0.0	950	941	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6903	1077	5462	37	0.0	0.0	5499	5465	937	504	0					
								++++++	AP FARM STATUS		++++++									
101AP	DN	SOUND	DRCVR	386.4	1063	77	1063	0	0.0	0.0	1063	1063	0	0	0	FM	S	05/01/89	0/ 0/ 0	
102AP	DN	SOUND	GRTFD	48.6	134	1006	134	0	0.0	0.0	134	134	0	0	0	FM	S	07/11/89	0/ 0/ 0	
103AP	DN	SOUND	DRCVR	412.7	1135	5	1135	0	0.0	0.0	1135	1135	0	0	0	FM	S	10/13/88	0/ 0/ 0	
104AP	DN	SOUND	GRTFD	7.4	20	1120	20	0	0.0	0.0	20	20	0	0	0	FM	S	10/13/88	0/ 0/ 0	
105AP	DSSF	SOUND	CWHT	300.2	826	314	826	0	0.0	0.0	826	826	0	0	0	FM	S	02/02/89	0/ 0/ 0	
106AP	DN	SOUND	DRCVR	412.1	1133	7	1133	0	0.0	0.0	1133	1133	0	0	0	FM	S	10/13/88	0/ 0/ 0	
107AP	DN	SOUND	DRCVR	409.5	1126	14	1126	0	0.0	0.0	1126	1126	0	0	0	FM	S	10/13/88	0/ 0/ 0	
108AP	DN	SOUND	DRCVR	316.3	870	270	870	0	0.0	0.0	870	870	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	6307	2813	6307	0	0.0	0.0	6307	6307	0	0	0					

TABLE C-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
November 1991

TANK STATUS				LIQUID VOLUME									SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPERNATANT LIQUID (Kgal)	DRAINABLE INTERSTIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLDG	SALT CAKE	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT
								++++++ AW FARM STATUS ++++++												
101AW	DSSF	SOUND	CWHT	408.7	1124	16	1040	2	0.0	0.0	1042	1040	0	84	0	FM	S	10/22/84	03/17/88	
102AW	DN	SOUND	EVFD	376.7	1036	104	1035	0	0.0	0.0	1035	1035	0	1	0	FM	S	02/29/84	02/02/83	
103AW	DN/PD	SOUND	DRCVR	236.3	650	490	287	37	0.0	0.0	324	302	0	363	0	FM	S	02/01/89	0/ 0/ 0	
104AW	DN	SOUND	DRCVR	409.5	1126	14	836	49	0.0	0.0	885	863	0	179	111	FM	S	03/05/87	02/02/83	
105AW	DN/PD	SOUND	DRCVR	328.4	903	237	606	29	0.0	0.0	635	613	0	297	0	FM	S	03/05/87	0/ 0/ 0	
106AW	DN	SOUND	SRCVR	191.9	528	612	245	40	0.0	0.0	285	263	0	198	85	FM	S	06/24/89	02/02/83	
6 DOUBLE-SHELL TANKS				TOTALS:	5367	1473	4049	157	0.0	0.0	4206	4116	0	1122	196					
								++++++ AY FARM STATUS ++++++												
101AY	DC	SOUND	DRCVR	325.0	894	86	812	2	0.0	0.0	814	812	0	83	0	FM	S	02/02/87	12/28/82	
102AY	DN	SOUND	DRCVR	114.7	315	665	283	0	0.0	0.0	283	283	0	32	0	FM	S	02/10/88	04/28/81	
2 DOUBLE-SHELL TANKS				TOTALS:	1209	751	1095	2	0.0	0.0	1097	1095	0	115	0					
								++++++ AZ FARM STATUS ++++++												
101AZ	AGING	SOUND	CWHT	346.8	954	26	919	0	0.0	0.0	919	919	0	35	0	FM	S	09/30/90	08/18/83	
102AZ	AGING	SOUND	DRCVR	355.0	976	4	885	3	0.0	0.0	888	885	0	91	0	FM	S	09/30/90	12/24/84	
2 DOUBLE-SHELL TANKS				TOTALS:	1930	30	1804	3	0.0	0.0	1807	1804	0	126	0					

TABLE C-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
November 1991

TANK STATUS				LIQUID VOLUME									SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPERNATANT LIQUID (Kgal)	DRAINABLE INTERSTIT. (Kgal)	PUMPED THIS MONTH	PUMPED TOTAL	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLDG	SALT CAKE	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT
								++++++	SY FARM STATUS		++++++									
101SY	CC	SOUND	CWHT	425.5	1121	19	0	237	0.0	0.0	237	231	561	0	560	FM	S	10/15/84	04/12/89	
102SY	DN/PT	SOUND	DRCVR	232.0	638	502	567	0	0.0	0.0	567	567	0	71	0	FM	S	05/12/87	04/29/81	
103SY	CC	SOUND	CWHT	271.7	747	393	170	0	0.0	0.0	170	170	573	0	4	FM	S	10/22/84	10/01/85	
3 DOUBLE-SHELL TANKS				TOTALS:	2506	914	737	237	0.0	0.0	974	968	1134	71	564					

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

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++ A FARM STATUS ++++++												
101A	DSSF	SOUND	/PI	953	0	413	0.0	0.0	413	390	3	950	P	F	11/21/80		08/21/85	
102A	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	(1)	07/20/89	
103A	DSSF	ASMD LKR	IS/II	370	4	13	0.0	111.0	12	0	366	0	-	FP	06/03/88	(1)	12/28/88	*
104A	NCPLX	ASMD LKR	IS/II	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78		06/25/86	
105A	NCPLX	ASMD LKR	IS/II	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	(1)	08/20/86	
106A	CP	SOUND	IS/II	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	/PI	748	0	320	0.0	0.0	320	298	3	745	P	F	05/06/82		08/18/87	
102AX	CC	ASMD LKR	IS/II	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88		06/05/89	
103AX	CC	SOUND	IS/II	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87		08/13/87	
104AX	NCPLX	ASMD LKR	IS/II	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
November 1991

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

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY 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	(1)	09/21/89	
105BX	NCPLX	SOUND	IS/II	51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	(1)	10/23/86	
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	(2)	09/11/90	
108BX	NCPLX	ASMD LKR	IS/II	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	(1)	10/23/86	
109BX	NCPLX	SOUND	IS/PI	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	(2)	09/11/90	
110BX	NCPLX	ASMD LKR	IS/PI	199	1	15	0.0	0.0	16	10	189	9	MP	M	08/22/85	(1)	07/31/85	
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	(2)	09/11/90	
12 SINGLE-SHELL TANKS			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	57	9.7	129.4	57	37	0	341	MP	M	08/30/91	(2)	09/11/87	*
103BY	NCPLX	ASMD LKR	/PI	400	0	160	0.0	78.5	160	137	5	395	MP	M	04/03/90	(2)	09/07/89	
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		12/02/88	
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
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
108BY	NCPLX	ASMD LKR	IS/II	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82		10/15/86	
109BY	NCPLX	SOUND	/PI	423	0	106	5.5	73.9	106	78	83	340	F	PS	08/30/91	(2)	10/15/86	*
110BY	NCPLX	SOUND	IS/II	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79		07/26/84	
111BY	NCPLX	SOUND	IS/II	459	0	0	0.0	313.2	0	0	21	438	P	M	04/28/82		10/31/86	
112BY	NCPLX	SOUND	IS/II	291	0	8	0.0	116.4	8	0	5	286	P	M	04/28/82		04/14/88	
12 SINGLE-SHELL TANKS			TOTALS:	4744	0	824	15.2	1373.9	824	634	719	4025						
						++++++ C FARM STATUS ++++++												
101C	NCPLX	ASMD LKR	IS/II	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83		11/17/87	
102C	NCPLX	SOUND	/PI	424	0	45	3.5	3.5	45	39	424	0	P	FP	04/28/82		05/18/76	*
103C	NCPLX	SOUND	/PI	195	133	0	0.0	0.0	133	133	62	0	F	S	10/22/90	(1)	07/28/87	
104C	CC	SOUND	IS/II	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	(1)	07/25/90	
105C	NCPLX	SOUND	/PI	150	0	11	0.0	0.0	11	4	150	0	F	S	05/31/85		04/01/88	
106C	NCPLX	SOUND	/PI	229	32	16	0.0	0.0	48	42	197	0	F	PS	04/28/82		04/05/79	
107C	NCPLX	SOUND	/PI	337	0	34	2.4	2.4	32	26	337	0	F	S	07/19/78		00/00/00	*
108C	NCPLX	SOUND	IS/II	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	(1)	12/05/74	
109C	NCPLX	SOUND	IS/II	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83		01/30/76	
110C	NCPLX	ASMD LKR	/PI	200	4	16	1.2	1.2	20	14	196	0	P	FMP	05/31/85		08/12/86	*
111C	NCPLX	ASMD LKR	IS/II	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82		02/25/70	
112C	NCPLX	SOUND	IS/PI	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	(2)	09/18/90	

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
201C	NCPLX	ASMD LKR	IS/II	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82		12/02/86	
202C	EMPTY	ASMD LKR	IS/II	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79		12/09/86	
203C	NCPLX	ASMD LKR	IS/II	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82		12/09/86	
204C	NCPLX	ASMD LKR	IS/II	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82		12/09/86	
16 SINGLE-SHELL TANKS			TOTALS:	2222	173	168	7.1	7.1	339	289	2049	0						
				++++++ S FARM STATUS ++++++														
101S	NCPLX	SOUND	/PI	427	12	84	0.0	0.0	96	90	244	171	F	PS	09/16/80		03/18/88	
102S	DSSF	SOUND	/PI	549	0	230	0.0	0.0	230	208	4	545	P	FP	04/28/82		03/18/88	
103S	DSSF	SOUND	/PI	248	17	85	0.0	0.0	102	79	10	221	M	S	11/20/80		06/01/89	
104S	NCPLX	ASMD LKR	IS/II	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	(1)	12/12/84	
105S	NCPLX	SOUND	IS/II	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88		04/12/89	
106S	NCPLX	SOUND	/PI	543	0	185	0.0	99.8	185	162	32	511	P	FP	06/28/82		03/17/89	
107S	NCPLX	SOUND	/PI	368	6	45	0.0	0.0	51	44	293	69	F	PS	09/25/80		03/12/87	
108S	NCPLX	SOUND	/PI	604	0	127	0.0	151.6	127	105	4	600	P	MP	04/28/82		03/12/87	
109S	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75		08/24/84	
110S	NCPLX	SOUND	/PI	692	0	110	0.0	185.9	110	103	131	561	F	PS	01/31/79		03/12/87	
111S	NCPLX	SOUND	/PI	596	10	195	0.0	3.3	205	134	139	447	P	FP	04/28/82		08/10/89	
112S	NCPLX	SOUND	/PI	637	0	134	0.0	125.1	134	112	6	631	P	FP	06/28/82		03/24/87	
12 SINGLE-SHELL TANKS			TOTALS:	5982	46	1399	0.0	791.0	1445	1192	1171	4765						

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++	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	226	0.0	0.0	258	236	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/II	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82		03/06/87	
108SX	NCPLX	ASMD LKR	IS/II	115	0	6	0.0	0.0	6	0	115	0	P	M	04/28/82		03/06/87	
109SX	NCPLX	ASMD LKR	IS/II	250	0	10	0.0	0.0	10	0	250	0	P	M	04/28/82		05/21/86	
110SX	NCPLX	ASMD LKR	IS/II	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76		02/20/87	
111SX	NCPLX	ASMD LKR	IS/II	125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74		03/10/87	
112SX	NCPLX	ASMD LKR	IS/II	92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82		03/10/87	
113SX	NCPLX	ASMD LKR	IS/II	26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82		03/18/88	
114SX	NCPLX	ASMD LKR	IS/II	181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82		02/26/87	
115SX	NCPLX	ASMD LKR	IS/II	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82		03/31/88	
15 SINGLE-SHELL TANKS			TOTALS:	4453	63	1255	0.0	113.2	1349	1203	1532	2858						

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++	T FARM STATUS		++++++									
101T	NCLPX	SOUND	/PI	133	30	5	0.0	0.0	35	30	103	0	F	S	08/31/84		07/03/84	
102T	NCPLX	SOUND	IS/II	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84		06/28/89	
103T	NCPLX	ASMD LKR	IS/II	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	(1)	07/02/84	
104T	NCPLX	SOUND	/PI	445	3	47	0.0	0.0	50	44	442	0	P	MP	04/28/82		06/29/89	
105T	NCPLX	SOUND	IS/II	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87		05/14/87	
106T	NCPLX	ASMD LKR	IS/II	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82		06/29/89	
107T	NCPLX	ASMD LKR	/PI	180	9	13	0.0	0.0	22	16	171	0	P	FP	08/31/84		07/12/84	
108T	NCPLX	ASMD LKR	IS/II	44	0	0	0.0	0.0	0	0	44	0	P	M	04/28/82		07/17/84	
109T	NCPLX	ASMD LKR	IS/II	58	0	0	0.0	0.0	0	0	58	0	M	M	12/30/84	(1)	07/03/84	
110T	NCPLX	SOUND	/PI	379	3	39	0.0	0.0	42	36	376	0	P	FP	04/28/82		07/12/84	
111T	NCPLX	ASMD LKR	/PI	458	2	49	0.0	0.0	51	45	456	0	P	FP	04/28/82		08/02/84	
112T	NCPLX	SOUND	IS/II	67	7	0	0.0	0.0	7	7	60	0	P	FP	04/28/82		08/01/84	
201T	NCPLX	SOUND	IS/II	29	1	3	0.0	0.0	4	0	28	0	M	PS	05/31/78		04/15/86	
202T	NCPLX	SOUND	IS/II	21	0	2	0.0	0.0	2	0	21	0	FP	P	07/12/81		07/06/89	
203T	NCPLX	SOUND	IS/II	35	0	4	0.0	0.0	4	0	35	0	M	PS	01/31/78		08/03/89	
204T	NCPLX	SOUND	IS/II	38	0	4	0.0	0.0	4	0	38	0	FP	P	07/22/81		08/03/89	
16 SINGLE-SHELL TANKS			TOTALS:	2065	74	189	0.0	0.0	263	208	1991	0						

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++	TX FARM STATUS		++++++									
101TX	NCLPX	SOUND	IS/II	87	3	2	0.0	0.0	5	0	84	0	F	P	02/02/84	(1)	10/24/85	
102TX	NCPLX	SOUND	IS/II	113	0	22	0.0	94.4	22	0	0	113	M	S	08/31/84		10/31/85	
103TX	NCPLX	SOUND	IS/II	157	0	15	0.0	68.3	15	0	157	0	F	S	08/14/80		10/31/85	
104TX	NCPLX	SOUND	IS/II	65	1	14	0.0	3.6	15	0	0	64	F	FP	04/06/84		10/16/84	
105TX	NCPLX	ASMD LKR	IS/II	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77		10/24/89	
106TX	NCPLX	SOUND	IS/II	453	0	10	0.0	134.6	10	0	0	453	M	S	08/29/77		10/31/85	
107TX	NCPLX	ASMD LKR	IS/II	36	1	1	0.0	0.0	2	0	0	35	FP	FP	01/20/84	(1)	10/31/85	
108TX	NCPLX	SOUND	IS/II	134	0	0	0.0	13.7	0	0	0	134	P	FP	05/30/83		09/12/89	
109TX	NCPLX	SOUND	IS/II	384	0	10	0.0	72.3	10	0	0	384	F	PS	05/30/83		10/24/89	
110TX	NCPLX	ASMD LKR	IS/II	462	0	15	0.0	115.1	15	0	0	462	M	PS	05/30/83		10/24/89	
111TX	NCPLX	SOUND	IS/II	370	0	9	0.0	98.4	9	0	0	370	M	PS	07/26/77		09/12/89	
112TX	NCPLX	SOUND	IS/II	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83		11/19/87	
113TX	NCPLX	ASMD LKR	IS/II	607	0	16	0.0	19.2	16	0	0	607	M	PS	05/30/83		04/11/83	
114TX	NCPLX	ASMD LKR	IS/II	535	0	15	0.0	104.3	15	0	0	535	M	PS	05/30/83		04/11/83	
115TX	NCPLX	ASMD LKR	IS/II	640	0	19	0.0	99.1	19	0	0	640	M	S	03/25/83		06/15/88	
116TX	NCPLX	ASMD LKR	IS/II	631	0	23	0.0	23.8	23	0	0	631	M	PS	03/31/72		10/17/89	
117TX	NCPLX	ASMD LKR	IS/II	626	0	8	0.0	54.3	8	0	0	626	M	PS	12/31/71		04/11/83	
118TX	NCPLX	SOUND	IS/II	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
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++	TY FARM STATUS		++++++									
101TY	NCPLX	ASMD LKR	IS/II	118	0	0	0.0	8.2	0	0	118	0	P	F	04/28/82		08/22/89	
102TY	NCPLX	SOUND	IS/II	64	0	14	0.0	6.6	14	0	0	64	P	FP	06/28/82		07/07/87	
103TY	NCPLX	ASMD LKR	IS/II	162	0	5	0.0	11.5	5	0	162	0	P	FP	07/09/82		08/22/89	
104TY	NCPLX	ASMD LKR	IS/II	46	3	12	0.0	0.0	15	0	43	0	P	FP	06/27/90	(1)	11/03/87	
105TY	NCPLX	ASMD LKR	IS/II	231	0	0	0.0	3.6	0	0	231	0	P	M	04/28/82		09/07/89	
106TY	NCPLX	ASMD LKR	IS/II	17	0	0	0.0	0.0	0	0	17	0	P	M	04/28/82		08/22/89	
6 SINGLE-SHELL TANKS			TOTALS:	638	3	31	0.0	29.9	34	0	571	64						
						++++++	U FARM STATUS		++++++									
101U	NCLPX	ASMD LKR	IS/II	25	3	0	0.0	0.0	3	0	22	0	P	MP	04/28/82		06/19/79	
102U	NCLPX	SOUND	/PI	374	18	126	0.0	0.0	144	122	43	313	P	MP	04/28/82		06/08/89	
103U	NCPLX	SOUND	/PI	468	13	176	0.0	0.0	189	166	32	423	P	FP	04/28/82		09/13/88	
104U	NCLPX	ASMD LKR	IS/II	122	0	7	0.0	0.0	7	0	122	0	P	MP	04/28/82		08/10/89	
105U	NCPLX	SOUND	/PI	418	37	142	0.0	0.0	179	157	32	349	FM	PS	09/30/78		07/07/88	
106U	NCPLX	SOUND	/PI	226	15	68	0.0	0.0	83	61	26	185	F	PS	12/30/83		07/07/88	
107U	DSSF	SOUND	/PI	406	31	147	0.0	0.0	178	156	15	360	F	S	12/30/83		10/27/88	
108U	NCPLX	SOUND	/PI	468	24	172	0.0	0.0	196	174	29	415	F	S	12/30/83		09/12/84	
109U	NCPLX	SOUND	/PI	463	19	163	0.0	0.0	182	160	48	396	F	F	11/13/77		07/07/88	
110U	NCPLX	ASMD LKR	IS/PI	186	0	15	0.0	0.0	15	9	186	0	M	M	12/30/84	(1)	12/11/84	
111U	DSSF	SOUND	/PI	329	0	122	0.0	0.0	122	99	26	303	PS	FPS	04/28/82		06/23/88	
112U	NCPLX	ASMD LKR	IS/II	49	4	0	0.0	0.0	4	0	45	0	P	MP	02/10/84	(1)	08/03/89	

TABLE C-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
November 1991

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	TOTAL PUMPED	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 SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
201U	NCPLX	SOUND	IS/II	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79		08/03/89	
202U	NCPLX	SOUND	IS/II	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79		08/08/89	
203U	NCPLX	SOUND	IS/II	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79		06/13/89	
204U	NCPLX	SOUND	IS/II	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						

NOTE: +/- 1K gal differences are the result of rounding
(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 asterisk (*) appears in "Chg since last monthly report" column, see Changes section following Inventory section for explanation.

CHANGES TO THE INVENTORY AND STATUS BY TANK FOR SINGLE-SHELL TANKS
November 1991

Tank No.	Comments
103-A	The following error was corrected to conform to WHC-SD-RE-TI-178 SST STABILIZATION RECORD: Drainable Liquid Remaining was changed from 17 to 12 Kgal
102-BY	Information per Single-Shell Tanks Engineer, and recalculations of Drainable Interstitial Liquid Drainable Liquid Remaining, and Pumpable Liquid Remaining, per letter 91055878 R1, H. D. Harmon to R. E. Gerton, DOE-RL, "Single-Shell Tank (SST) Interim Stabilization Activities," dated November 27, 1991. Following entries were changed in the Inventory and Status by Tank section: Drainable Interstitial Liquid is 58.6 Kgal Drainable Liquid Remaining is 58.6 Kgal Pumpable Liquid Remaining is 36.6 Kgal Pumped This Month was 9.7 and Total Pumped is 129.4 Kgal
109-BY	Information per Single-Shell Tanks Engineer, and recalculations of Drainable Interstitial Liquid Drainable Liquid Remaining, and Pumpable Liquid Remaining, per letter 91055878 R1, H. D. Harmon to R. E. Gerton, DOE-RL, "Single-Shell Tank (SST) Interim Stabilization Activities," dated November 27, 1991. Following entries were changed in the Inventory and Status by Tank section: Drainable Interstitial Liquid is 106.1 Kgal Drainable Liquid Remaining is 106.1 Kgal Pumpable Liquid Remaining is 78.1 Kgal Pumped This Month was 5.5 and Total Pumped is 73.9 Kgal
102-C	Information per Single-Shell Tanks Engineer: Began saltwell pumping November 19, 1991 Total Waste is 424 Kgal Supernatant is 0 Drainable Interstitial Liquid is 45 Kgal Drainable Liquid Remaining is 45 Kgal

CHANGES TO THE INVENTORY AND STATUS BY TANK FOR SINGLE-SHELL TANKS
November 1991

Tank No.	Comments
	Pumpable Liquid Remaining is 39 Kgal Sludge is 424 Kgal Saltcake is 0 Pumped This Month was 3.5 Kgal and Total Pumped is 3.5 Kgal
107-C	Information per Single-Shell Tanks Engineer: Began saltwell pumping November 19, 1991 Total Waste is 337 Kgal (Supernatant + Sludge/Saltcake) Supernatant is 0 Drainable Interstitial Liquid is 34 Kgal Drainable Liquid Remaining is 32 Kgal Pumpable Liquid Remaining is 26 Kgal Sludge is 337 Kgal Saltcake is 0 Pumped This Month was 2.4 Kgal and Total Pumped is 2.4 Kgal
110-C	Information per Single-Shell Tanks Engineer: Began saltwell pumping November 27, 1991 Total Waste is 200 Kgal (Supernatant + Sludge/Saltcake) Supernatant is 4 Kgal Drainable Interstitial Liquid is 16 Kgal Drainable Liquid Remaining is 20 Kgal Pumpable Liquid Remaining is 14 Kgal Sludge is 196 Kgal Saltcake is 0 Pumped This Month was 1.2 Kgal and Total Pumped is 1.2 Kgal

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

APPENDIX D

PERFORMANCE SUMMARY

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

WASTE VOLUMES (Kgallons)

November 1991

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

SOURCE	THIS MONTH	FY1992 TO DATE
B PLANT	21	43
PUREX TOTAL (1)	0	10
PFP (1)	0	0
T PLANT (1)	0	30
S PLANT (1)	0	0
300/400 AREAS (1)	0	0
SULFATE WASTE -100 N (2)	0	0
TANK FARMS & SWL (6)	27	37
Tank Farms	5	
Saltwell Liquid	22	
OTHER GAINS	57	89
Slurry increase (3)	17	
Condensate	31	
Instrument change (7)	0	
Unknown (5)	9	
OTHER LOSSES	-29	-79
Slurry decrease	-3	
Evaporation (4)	-25	
Instrument change (7)	0	
Unknown (5)	-1	
EVAPORATED	0	0
GROUTED	0	0
Total	76	130

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

Footnotes: See Next Page

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

SOURCE		THIS MONTH	FY1992 TO DATE
105-C (8)	Gains	0	0
	Losses	-2	-3
106-C (8)	Gains	0	8
	Losses	-7	-11
Total		-9	-6

CUMULATIVE EVAPORATION - 1950 TO PRESENT WASTE VOLUME REDUCTION

FACILITY	
242-B EVAPORATOR (9)	7172
242-T EVAPORATOR (1950's) (9)	9181
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	196748

TOTAL THROUGHPUT

FACILITY	
242-A EVAPORATOR (12)	182437
242-S EVAPORATOR (11)	134587
Total	317024

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.

(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 due 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 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.

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.

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

(10) Currently inoperative. These two in-tank solidification (ITS) units provided in-tank heating. 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. **A restart schedule was submitted to DOE for approval, specifying September 30, 1992, as the projected startup date.** This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals.

(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.

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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)
November 1991

TANK FARMS	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST				
A	8	439	442	390
AN	5462	37	5499	N/A
AP	6307	0	6307	N/A
AW	4049	157	4206	N/A
AX	3	370	373	304
AY	1095	2	1097	N/A
AZ	1804	3	1807	N/A
B	15	164	179	80
BX	50	155	205	135
BY	0	824	824	634
C	173	168	339	289
Total	18966	2319	21278	1832
WEST				
S	46	1399	1445	1192
SX	63	1255	1349	1203
SY	737	237	974	N/A
T	74	189	263	208
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1096	4499	5626	3707
TOTAL	20062	6818	26904	5539 (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)
November 1991

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	15.2	27.0	1373.9
C	7.1	7.1	7.1
Total	22.3	34.1	1613.4
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	22.3	34.1	3753.2

NA = Not Applicable

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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

November 1991

FACILITY	LOCATION	PURPOSE (receives waste from:)	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
EAST AREA					
A-302-A	A FARM	151-A DB	3766	CASS/FIC	
311-ER	B PLANT	151-ER, 152-ER DB	2108	CASS/FIC	PUMPED JUNE 29, 1991
152-AX	AX FARM	152-AX DB	O/S	MANUALLY	DIAL O/S, USING ZIP CORD
151-AZ	AZ FARM	152-AZ DB, AZ LOOP SEAL	3150	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	20150	MANUALLY	USING MANUAL TAPE FOR TANK
244-A-TK/SMP	AR VAULT	DCRT - RECEIVES FROM SEVERAL FARMS	1912	MCS	DIRECT GAL READING
204-AR	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	470	DIP TUBE	ALARMS ON CASS
417-A	A FARM	702-A PROCESS CONDENSATE	26845	DIP TUBE	
WEST AREA					
TX-302-C	TX FARM	154-TX DB	2958	CASS/FIC	
U-301-B	U FARM	151-U, 152-U, 153-U, 252-U DB	5292	CASS/FIC	
UX-302-A	U PLANT	154-UX DB	8042	CASS/MFIC	
241-S-304	S FARM	151-S DB	226	FIC	OPERATIONAL 10/91, REPLACED S-302-A
244-S-TK/SMP	S FARM	DCRT - RECEIVES FROM SEVERAL FARMS	28980	MANUALLY	CWF
244-TX-TK/SMP	TX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	26490	MANUALLY	CWF, TANK MANUAL TAPE O/S

Total active facilities 15

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

November 1991

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
A-302-B	A FARM	152-A DB	3207	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

November 1991

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	BY	REMARKS
S-302	S FARM	240-S-151 DB	2348	CASS/FIC	ASSUMED LEAKER EPDA 85-04
S-302-A	S FARM	241-S-151 DB	54	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	UNKNOWN	NM	ISOLATED 1985(1)
SX-304(302)	SX FARM	152-SX TRANSFER BOX, 151-SX DB	UNKNOWN	NM	ISOLATED 1985(1)
TX-302	TX FARM	153-TX DB	UNKNOWN	NM	ISOLATED 1985(1)
TX-302-X-B	TX FARM	TX ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
TX-302-B	TX FARM	155-TX DB	O/S	CASS/MT	WORK REQ. ISSUED TO REPLACE O/S MT
TY-302-A	TY FARM	153-TX DB	UNKNOWN	NM	ISOLATED 1985(1)
TY-302-B	TY FARM	TY ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
001-UR-TK/SMP	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
002-UR-TK/SMP	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
003-UR-TK/SMP	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
001-TXR-TK/SMP	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
002-TXR-TK/SMP	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
003-TXR-TK/SMP	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
361-T-TANK	T PLANT	DRAINAGE FROM T-PLANT	UNKNOWN	NM	ISOLATED 1985(1)
361-U-TANK	U PLANT	DRAINAGE FROM U-PLANT	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-U-TK/SMP	U FARM	DCRT - RECEIVES FROM SEVERAL FARMS	UNKNOWN	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	Leak Estimate 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)
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)
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 (l)	11/78	1986	(d)
241-BX-108	1974	2500	500 (l)	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	20000 (l)	8/79	1986	(d)
241-SX-109 (6)	1965	5000 (10)		5/81	1983	(a)
241-SX-110	1976	5500 (10)		8/79	1989	(g)
241-SX-111	1974	2000	2000 (l)	7/79	1986	(d)
241-SX-112	1969	30000	40000 (l)	7/79	1986	(d)
241-SX-113	1962	15000	8000 (l)	11/78	1986	(d)
241-SX-114	1972	-- (8)		7/79	1989	(g)
241-SX-115	1965	50000	40000 (l)	9/78	1986	(d)
241-T-103	1974	<1000 (10)		11/83	1989	(g)
241-T-106	1973	115000 (10)	40000 (l)	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 (l)	2/83	1986	(d)
241-TY-104	1981	1400 (10)		1/83	1986	(d)
241-TY-105	1960	35000	4000 (l)	2/83	1986	(d)
241-TY-106	1959	20000	2000 (l)	11/78	1986	(d)
241-U-101	1959	30000	20000 (l)	9/79	1986	(d)
241-U-104 (7)	1961	55000	90 (l)	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)
66 Tanks		1,000,000 (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 4)

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 (WAC), 173-303-070 (2)(a)(ii), 1989, 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 other document estimates (see References).

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

2. 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.

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

4. Reference (c) contains an estimate 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.

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

TABLE H-1. Single-Shell Tank Leak Volume Estimates.
(Sheet 3 of 4)

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

(3) In many cases, a leak was suspected long before it was identified or confirmed. In 1984, the criteria designations of "suspected leaker," "questionable integrity," and "confirmed leaker" were merged into one category now reported as "assumed leaker."

(4) There is an effort currently in progress to reevaluate these leak volume estimates. The tanks to be reviewed next (in order) are 108-SX, 109-SC, and 115-SX.

(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 4)

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 17, 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 17, 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.

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