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Tank Farm Surveillance and Waste Status Summary Report for July 1992

B. M. Hanlon

Date Published
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TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR JULY 1992

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 49 smaller catch tanks and special surveillance facilities, and provides supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U.S. Department of Energy-Richland Operations Office Order 5820.2A, Chapter I, Section 3.e.(3) (DOE-RL, 1990, Radioactive Waste Management, *U.S. Department of Energy-Richland Operations Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm Tanks.*

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

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

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

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TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR JULY 1992

SUMMARY

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

TANK STATUS

Category	Quantity	Date of Last Change
In-Service Tanks[c]	28 double-shell	10/86
Out-of-Service Tanks[a]	149 single-shell	07/88
Assumed-Leaker Tanks	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 "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of *National Defense Authorization Act for Fiscal Year 1991*, Public Law 101-510, 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 **Food Instrument Company (FIC) field readings showed no changes during July 1992. The level remained at 412.40 in. (±.10 in.). The radar gauge measurement increased from 412.04 to 413.62 in. during July. The manual tape measurement device is out of service.**

Potential or Assumed Leaks:

None.

Potential or Assumed <u>Intrusions</u>:

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

<u>Tank 241-S-107</u>. 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, when water was added to the tank in order to install a saltwell screen. The reference baseline was adjusted to reflect this water addition. **No increases were observed in the surface level measurement during the month of July.** This tank will remain under close surveillance for unexplained surface level increases. Pumping of liquid from this tank is planned to start within one year.

<u>Tank 241-TX-115</u>. The liquid observation well (LOW) scans revealed an interstitial liquid level (ILL) increase over baseline in excess of the established 0.4-ft increase criteria in May 1987. Comparison of past and present in-tank photographs show no significant change in surface conditions or obvious evidence of intrusion. An Event Fact Sheet was issued on January 9, 1990. The ILL showed an additional increase of 0.4 ft on March 1, 1991. The increase was verified on March 11, 1991. These LOWs are monitored quarterly, alternating every six weeks with the neutron and gamma probes. No further increase of the ILL has been observed since March 1, 1991. The LOW was last scanned with the neutron probe on November 1, 1991. The LOWs are not being monitored at the required frequency because of restricted Tank Farm activities resulting from toxic vapor releases (see Highlights in January 1992 report).

HIGHLIGHTS

1. **Temperatures in Tanks 241-C-105 and C-106**

   The active ventilating exhauster for these high heat load tanks was out of service from January 25 to June 7, 1992. Tank 106-C is also included on the Watch List for temperature monitoring. The temperature in C-106 increased from 161 °F on January 25, to 199 °F on June 7, when the exhauster was restarted. Approximately 11,000 gal of cooling water was added to 106-C on June 12. The temperature in this tank decreased to 173 °F by July 24, 1992 (see Figure 2). The baseline is 161 °F.

   Temperatures in 105-C increased from 92 °F on January 25 to 108 °F on June 7, 1992. Approximately 1,000 gal of cooling water was added to 105-C on June 27, 1992. The temperature decreased to 100 °F on July 18, and increased to 103 °F by July 24, 1992 (see Figure 3). The baseline is 100 °F.

2. **Criticality Safety Issues**

   On April 30, 1992, an Unreviewed Safety Question concerning Criticality Safety issues in the Tank Farms was declared to be an event. Unusual Occurrence report RL-WHC-TANKFARM-1992-0037 was issued. A prohibition was placed on all waste transfers into and between the tank farm facilities which is negatively affecting various Hanford programs. An

Interim Justification for Continued Operation (JCO) was approved by DOE-RL on June 26, authorizing specific transfers on a case-by-case basis. The Interim JCO expired on July 31, and efforts are being made to extend the interim authority. This is not expected to have any significant impact on the facility.

3. Saltwell Pumping

Interim stabilization has been delayed because of the criticality safety issues which suspended waste transfers into and between tank farm facilities. Saltwell pumping in 102-C also remains suspended because of a safety concern about whether this tank should be included on the organics watch list if the criteria for that list is changed.

4. "Drain Train" Robot

The "drain train," is a four-section, remotely operated robot that gives its operator a view of the inside of piping while measuring radioactive contamination. It was developed to survey an underground piping system in the 300 Area which was installed in the 1950s and then closed and capped in 1979, and is now undergoing characterization. The train fits into six-inch-diameter pipes, carries two miniature cameras and radiation monitors which measure gamma radiation levels. The readings are transmitted to the control station. The train propels itself through thick sludge with an all-wheel drive electrical motor. The robot train has been successfully tested and will soon be in operation wherever circumstances are suitable for its use. The train was recently displayed to engineers from the Long Island Power Authority's Shoreham Nuclear Power Station who came in search of technology to help them decontaminate and decommission their closed reactor.

5. Tank 241-SY-101

The first of four new hydrogen-monitoring systems was installed in Tank 101-SY in March 1992. This monitor will improve measurement of hydrogen increases during gas releases as well as background hydrogen between the ventings. The monitor was working during the April 20 venting and provided valuable data. Up to three more of these units will be placed in 101-SY.

Three small-scale testing models have been developed to demonstrate how "mixing" the waste with a jet mixer pump in 101-SY could stop the "burping." A full-size jet mixer pump is currently being designed and fabricated based on the testing data, and an in-tank mixing test is scheduled for 101-SY this fall.

6. Occurrence Reports

<u>RL-WHC-TANKFARM-1992-0054 (OFF-NORMAL) OSD REQUIREMENT EXCEEDED WHEN F-18 TRANSFER TO 102-AN WAS ROUTED THROUGH DIVERSION BOX WHICH DRAINS INTO CATCH TANK RESULTED IN CATCH TANK ABOVE LIQUID LEVEL LIMITS</u>.

On July 5, 1992, a transfer from PUREX was made through a diversion box which drains into catch tank A-302-A. On July 15, it was discovered that during the F-18 transfer, the liquid level in Catch Tank A-302-A was above 50% of the operating limit. The OSD on detection/control requires the catch tank liquid level to be below 50% during transfers. The transfer was made while the catch tank liquid level was above the 50% liquid level.

A contributing cause of the problem was inadequate procedures - The general transfer procedures do not refer to OSD operating limits.

Changes to this Report:

1. Figure 4 (Current Status and Contingency Space for the 242-A Evaporator Restart) has been added to this report.

2. Table 9 (Single-Shell Tanks Monitoring and Thermocouple Status) has been updated and is being included to show the July 1992 temperature monitoring status on the low heat load tanks which are monitored semiannually in January and July. Work orders issued to repair thermocouples have not been completed.

3. Two columns, "Thermocouple Probe Position" and "Total Waste Inches," have been added to Table 3 (Tanks with Potential for Hydrogen) and Table 4 (Tanks Containing Organic Salts).

9 2 1 2 7 5 6 1 6 9 5

TABLE 1. WATCH LIST TANKS

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, " Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). These have been identified as the Priority 1 Hanford Site Tank Farm Safety Issues: "Issues/situations that contain most necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products, e. g., Tank 101-SY."

July 1992

Single-Shell Tanks

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

Double-Shell Tanks

Tank No.	Category
103-AN	Hydrogen
104-AN	Hydrogen
105-AN	Hydrogen
101-SY	Hydrogen
103-SY	Hydrogen
5 Tanks	

9 2 1 2 7 5 6 1 6 9 6

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

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

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

Tank No.	Highest Temp. Reading (8) This Month (F.)	Date	Probe (6) Position	Total Waste (inches) (7)	FeCN (x1000 g mol)(2)	Estimated Heat Load (3) (Btu/h)	Estimated Heat Load (3) (kW)	Assumed Leak Date	Interim Stabilized Date
102-BX	65	07/24/92	TC#2	42	<1	<10000	<2.93	1971	11/78
106-BX	66	07/24/92	TC#1	24	<1	<10000	<2.93	Sound	N/A
110-BX	63	07/24/92	TC#2	80	<1	<10000	<2.93	1976	8/85
111-BX	67	07/24/92	TC#2	91	<1	<10000	<2.93	1984	N/A
101-BY	73	07/24/92	TC#1	148	<1	8200	2.40	Sound	5/84
103-BY	79	07/18/92	TC#2	153	66	8600	2.52	1973	N/A
104-BY (5)	128	07/18/92	TC#2	155	83	5500	1.61	Sound	1/85
105-BY	113	07/18/92	TC#1	190	36	3400	0.97	1984	N/A
106-BY	129	07/24/92	TC#1	241	70	3300	0.97	1984	N/A
107-BY	97	07/18/92	TC#1	104	42	14500	4.25	1984	7/79
108-BY	107	07/18/92	TC#1	90	58	23000	6.74	1972	2/85
110-BY (5)	120	07/24/92	TC#1	152	71	25200	7.39	Sound	1/85
111-BY	89	07/18/92	LOW	174	6	34200	10.02	Sound	1/85
112-BY	86	07/18/92	LOW	113	2	<10000	<2.93	Sound	5/85
108-C	76	07/24/92	TC#2	31	25	10000	<2.93	Sound	3/84
109-C (5)	79	07/11/92	TC#1	31	30	3800	1.11	Sound	11/83
111-C	76	07/11/92	TC#2	28	33	<10000	<2.93	1968	3/84
112-C (5)	81	07/24/92	TC#1	45	31	<10000	<2.93	Sound	9/90
101-T	66	07/24/92	TC#1	56	<1	<10000	<2.93	Sound	N/A
107-T	66	07/24/92	TC#3	73	5	<10000	<2.93	1984	N/A
118-TX (4)	73	07/24/92	TC#2	134	<1	4900	1.44	Sound	4/83
101-TY	66	07/23/92	TC#5	50	23	<10000	<2.93	1973	8/83
103-TY	69	07/02/92	LOW	66	28	<10000	<2.93	1973	2/83
104-TY	65	07/23/92	TC#1	24	12	<10000	<2.93	1981	1/83
24 Tanks									

Legend: TC = Thermocouple 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 4)

FOOTNOTES:

(1) This Priority 1 Waste Tank Safety Issue is stated as follows: "Could the concentrations and distribution of ferrocyanide and nitrate/nitrite in the tanks lead to an explosion if allowed to heat up or if an uncontrolled exothermic reaction could occur (24 SSTs)?"

(2) The estimates of the amount of FeCN in the tanks are based on WHC-SD-WM-ER-133-REV 0, "An Assessment of the Inventories of the FeCN Watch List Tanks," (Table 3-7), October 1991.

(3) The estimated heat generation rates were from WHC-EP-0474-4, "Quarterly Report on Defense Nuclear Facilities Safety Board Recommendation 90-7 for the Period Ending March 31, 1992," Table 1-A, dated January 1992. Tank 104-BY only estimated per WHC-EP-0521, "SST 104-BY Thermal Hydraulic Analysis," October 1991 (kW = 3412 Btu/h).

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

(5) New thermocouples trees are planned to be installed in these tanks during FY 1992.

(6) In most tanks, TC#1 is located approximately 4 in. above the bottom of the tank, TC#2 is located 24 in. above TC#1, and the remaining TCs are 24 in. above each previous TC.

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

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

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

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

Continued next page

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TABLE 2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 3 of 4)

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

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

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

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

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

The highest temperature reading, if Good, Acceptable, or Marginal, is used in sheet 1 of Table 2. Failed thermocouples are 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 – Acceptable #2 thru 14 – Good	12 TCs connected to switch
101-BY	#1, 2, 3, 5 thru 14 Good #4 – Acceptable	14 TCs connected to switch
103-BY	#1 thru 14 Good	TCs repaired 12/29/91. LOW readings discontinued.
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. (Riser 10C)
105-BY	#1 thru 9, 12 thru 14 Good #10, 11 – Failed/Not repairable	10 TCs connected to switch. (Riser 1) This tree is taken manually, however, switch positions & TC numbers are not in agreement. TC#1 thru 6 on data sheet are taken in switch positions 1 thru 6 in Riser 10C. TC#7 thru 16 on data sheet are taken in switch positions 1 thru 10 in Riser 1. #11 thru 14 in Riser 1 are not connected to switch.
106-BY	#1 thru 6 – Acceptable	6 TCs connected to switch. New tree installed in 1983
107-BY	#1 thru 14 – Marginal	14 TCs connected to two switches
108-BY	#1, 2, 3, 6, 9 – Marginal #4, 5, 7, 8, 10 – Acceptable	10 TCs, no switch

Continued next page

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

Tank No.	Thermocouple Condition	Comments
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 (no LOW)
107-T	#1 thru 4 - Failed #5 thru 10 - Acceptable #11 - Marginal	11 TCs connected to switch Readings taken by Instrument Technician (no LOW)
118-TX	#1 thru 5, 7 thru 14 - Good #6 - Marginal	14 TCs connected to switch
101-TY	#1 thru 10, 12 thru 14 - Acceptable #11 - Marginal	12 TCs, no switch. Readings taken by Instrument Technician (no LOW)
103-TY	#2, 3, 5 thru 14 - Marginal #1, 4 - Failed/Not repairable	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 (no LOW)

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

These tanks have been declared an Unreviewed Safety Question (USQ) because of the potential consequences of a radiologic release resulting from a hydrogen burn and resulting secondary crust burn, an event not analyzed in previous safety analyses. Temperatures in these tanks did not exceed the applicable maximum temperature criteria or surveillance frequency limits for the month of July 1992. All Watch List tanks are reviewed for increasing temperature trends.

Tank No.	Highest Temp. Reading This Month (F.)	Date	Probe (4) Position	Total Waste (5) (inches)	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
101-A	155	07/23/92	TC#9	354	Weekly	SOUND	N/A
101-AX	140	07/23/92	TC#1	279	Weekly	SOUND	N/A
103-AX	116	07/30/92	TC#1	48	Weekly	SOUND	8/87
102-S (3)	104	07/17/92	TC#3	207	Weekly	SOUND	N/A
111-S	88	07/16/92	TC#2	224	Weekly	SOUND	N/A
112-S	83	07/24/92	TC#4	239	Weekly	SOUND	N/A
101-SX	135	07/30/92	TC#1	173	Weekly	SOUND	N/A
102-SX	150	07/30/92	TC#1	205	Weekly	SOUND	N/A
103-SX	175	07/04/92	TC#2	245	Weekly	SOUND	N/A
104-SX	170	07/16/92	TC#1	231	Weekly	1988	N/A
105-SX	180	07/04/92	TC#1	256	Weekly	SOUND	N/A
106-SX (3)	114	07/23/92	TC#1	203	Weekly	SOUND	N/A
109-SX (2)	148	07/30/92	Tree 8/TC#1	98	Weekly	1965	5/81
110-T	62	07/24/92	TC#1	145	Weekly	SOUND	N/A
103-U	88	07/09/92	TC#2	178	Weekly	SOUND	N/A
105-U	91	07/09/92	TC#3	159	Weekly	SOUND	N/A
108-U	88	07/09/92	TC#2	178	Weekly	SOUND	N/A
109-U	86	07/09/92	TC#2	176	Weekly	SOUND	N/A
103-AN (1)	113	07/27/92			Weekly	SOUND	N/A
104-AN (1)	116	07/27/92			Weekly	SOUND	N/A
105-AN (1)	105	07/27/92			Weekly	SOUND	N/A
101-SY (1)	126	07/27/92			Daily	SOUND	N/A
103-SY (1)	113	07/13/92			Weekly	SOUND	N/A
23 Tanks			Legend: Tree = Thermocouple Tree TC = Thermocouple				

(1) Double-shell tanks
(2) This tank has the potential for flammable gas accumulation only because other SX tanks vent through it
(3) These tanks also contain potentially high concentrations of organic salts
(4) In most SSTs, TC#1 is located approximately 4" above the bottom of the tank, with each succeeding TC located 24" above the previous TC. See footnote (7) in Table 5 (High Heat Tanks) for further information.
(5) See footnote (8) in Table 5 (High Heat Tanks) for Total Waste Inches calculations.

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

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

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

Tank No.	Highest Temp. Reading This Month (F.)	Date	Probe (4) Position	Total Waste (5) Inches	Assumed Leaked Date	Interim Stabilized Date
103-B	63	07/25/92	TC#2	29	1978	2/85
103-C (3)	124	07/24/92	TC#2	78	SOUND	N/A
102-S (1)	104	07/17/92	TC#3	207	SOUND	N/A
106-SX (1)	114	07/23/92	TC#1	203	SOUND	N/A
105-TX	98	07/23/92	TC#4	228	1977	9/83
118-TX (2)	73	07/23/92	TC#2	134	SOUND	4/83
106-U	81	07/17/92	TC#1	90	SOUND	N/A
107-U	78	07/04/92	TC#2	155	SOUND	N/A
8 Tanks						

Legend: TC = Thermocouple

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

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

High heat load tanks have temperature surveillance requirements established by SD-WM-SAR-006 REV 1, "SST Isolation Safety Analysis Report," dated January 1986, and OSD-T-151-00013 REV D-O, "Operating Specifications for Single-Shell Waste Storage Tanks," dated August 1990. These requirements do not apply to the temperature laterals beneath 105-A.

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

Tank No.	Highest Temp. Reading this Month (F.)	Date	Probe Position (7)	Total Waste Inches (8)	Monitoring Frequency	Estimated Heat Load (1) (Btu/h)	Estimated Heat Load (1) (kW)	Assumed Leaked Date	Interim Stabilized Date
104-A (4)	197	07/23/92	R-18	18	Weekly	50000	14.65	1975	9/78
105-A (4)	155	07/30/92	R-16	14	Weekly	50000	14.65	1963	7/79
105-C (2)(6)	103	07/24/92	TC#1	62	Monthly	42000	11.72	SOUND	N/A
106-C (2)(3)(6)	175	07/03/92	TC#1	91	Weekly	150000	43.96	SOUND	N/A
107-SX	173	07/01/92	Tree 8/TC#1	45	Monthly	42000	11.72	1964	10/79
108-SX	198	07/01/92	Tree 8/TC#1	49	Monthly	45000	13.19	1962	8/79
109-SX (3)	148	07/30/92	Tree 8/TC#1	98	Weekly	50000	14.65	1965	5/81
110-SX	173	07/01/92	Tree 2/TC#1	30	Monthly	42000	11.72	1976	8/79
111-SX	191	07/01/92	Tree 2/TC#1	53	Monthly	44000	12.90	1974	7/79
112-SX	156	07/01/92	Tree 8/TC#1	41	Monthly	43000	12.60	1969	7/79
114-SX	186	07/01/92	Tree 2/TC#1	73	Monthly	58000	17.00	1972	7/79
11 Tanks									
105-A Laterals (5)	237	07/27/92			Weekly				

Legend: Probe Position
Tree=Thermocouple Tree
TC=Thermocouple on Tree
R=Riser

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

Footnotes - see next page

9 2 1 2 7 5 6 1 7 0 3

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

Footnotes

(1) High heat loads as of 1988, evaluation completed April 20, 1989 (1kW = Btu/h). The predominant heat load for these tanks is from CS 137 (half life of 30 yr) and SR 90 (half life of 28.1 yr).

(2) Periodic water additions are required in these tanks to maintain evaporative cooling and thus prevent overheating. Both tanks are scheduled for interim stabilization in 1996, at which time cooling water additions will be discontinued.

(3) Watch List Tanks: 106-C is on the Watch List because "without water additions (in the event of a leak) the tank could exceed structural temperature limits resulting in potential tank collapse." 109-SX is on the hydrogen Watch List because it has the potential for flammable gas accumulation because other SX tanks vent through it.

(4) 104/105-A exhauster out of service since October 1, 1991. Repaired and ready to start functional checks on new heater controller. Temperatures in 104-A and 105-A continue to increase since the exhauster went down. These temperatures are being closely monitored.

(5) Maximum lateral temperatures under 105-A increased 20 degrees F. by January 1992, but then dropped a few degrees and are remaining fairly stable at current temperature. These temperatures are being closely monitored.

(6) 105/106-C exhauster was out of service from January 25 to June 7, 1992, when the exhauster was restarted. Temperatures in both tanks peaked on June 7 and decreased to 103 degrees F. (105-C) and 175 degrees F. (106-C) by the end of July 1992. Although 105-C is required to be monitored monthly, it is actually monitored weekly.

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

Footnotes continued

(7) Tanks 104-A and 105-A

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

Tanks 105-C and 106-C

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

TC Number	1	2	3	4	5	6
Inches from bottom of tank	4	28	52	76	100	124

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

Each of these tanks has eight thermocouple trees, with eight thermocouples on each tree. Tree #2 and Tree #8 are monitored in each tank.

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

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

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

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

July 1992

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE

Complexant Concentrate (102-AN, 107-AN, 101-AY, 101-SY, 103-SY)	4.99 Mgal
Concentrate Phosphate (106-AN)	1.15 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)	1.34 Mgal
Dilute Waste (1) (101-AN, 101-AP, 103-AP, 106-AP, 107-AP, 108-AP, 102-AW, 103-AW, 104-AW, 105-AW, 106-AW, 101-AY, 102-AY, 102-AZ, 102-SY)	11.02 Mgal
NCRW and PFP Settled Solids (103-AW, 105-AW, 102-SY)	1.01 Mgal
Total Inventory:	24.51 Mgal

SPACE DESIGNATED FOR SPECIFIC USE

Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Segregated Tank Space (102-AN, 107-AN, 103-AW, 101-AY)	0.65 Mgal
Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY)	0.68 Mgal
Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	1.68 Mgal
Miscellaneous Head Space	0.21 Mgal
	5.50 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	− 24.61 Mgal
Space Designated for Specific Use	− 5.55 Mgal
Remaining Unallocated Space	1.17 Mgal

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

Note: Net change since last month: inventory increased 81 Kgal

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

July 1992

Tank No.	Category	Date of Last Automatic FIC Reading	Reading Status	Corrective Action	Monitoring Frequency
112-B	IS	04/11/92	No reading taken since 05/18/92		Quarterly
104-BX	IS	04/13/92	No reading taken since 04/13/92	Work Pkg 2E-91-000321	Weekly
107-BX	IS	04/27/92	No reading taken since 04/27/92		Weekly
102-S	-	06/01/92	No reading taken since 06/01/92		Weekly
111-S	-	02/20/92	No reading taken since 03/02/92		Weekly
101-T	-	12/02/91	No reading taken since 12/02/91		Weekly
102-T	IS	05/26/91	No reading taken since 05/26/91		Quarterly
107-T	-	06/22/92	No reading taken since 06/22/92		Weekly
103-SX	-	05/04/92	No reading taken since 05/04/92		Weekly
104-TY	IS	04/10/92	No reading taken since 04/10/92		Quarterly
105-U	-	06/09/91	No reading taken since 11/18/91	Work Pkg pending	Weekly
109-BX	IS	07/04/91	Taking manual FIC readings		Monthly
109-BY	-	07/04/91	Taking manual FIC readings		Weekly
105-C	-	04/02/92	Taking manual FIC readings		Daily
103-S	-	06/01/92	Taking manual FIC readings		Weekly
109-S	-	02/15/92	Taking manual FIC readings		Weekly
103-T	IS	10/28/91	Taking manual FIC readings		Quarterly
112-T	IS	03/16/90	Taking manual FIC readings		Quarterly
109-T	IS	04/20/92	Taking manual FIC readings		Monthly
118-TX	IS	12/31/91	Taking manual FIC readings		Quarterly
T-Substation	-	06/27/92	Taking manual FIC readings		W/M/Q
109-U	IS	12/29/91	Taking manual FIC readings		Quarterly
B-Substation	-	07/20/92	Taking manual FIC readings		W/M
103-AN	DST	03/04/92	Taking manual FIC readings		Daily
108-AP	DST	07/24/92	Taking manual FIC readings		Daily
101-SY	DST	08/23/91	Taking manual FIC readings		Daily
102-AP	DST	05/07/92	Taking manual tape readings		Daily
101-AW	DST	05/09/92	Taking manual tape readings		Daily
103-AW	DST	03/21/92	Taking manual tape readings		Daily
105-AW	DST	01/30/92	Taking manual tape readings		Daily
101-AY	DST	08/31/90	Taking manual tape readings		Daily
101-AZ	DST	02/02/90	Taking manual tape readings		Daily
102-AZ	DST	02/15/90	Taking manual tape readings		Daily
102-SY	DST	01/06/92	Taking manual tape readings		Daily
Catch Tanks					
A-302-A		04/16/91	Taking manual FIC reading		Daily
S-302		07/02/90	Taking manual FIC reading		Daily
TX-302-C		08/07/91	No reading taken since 03/12/92		Daily
S-302-A		12/04/91	No reading taken since 12/04/91		Daily

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

TABLE 8. HANFORD SITE WASTE TANK FARM SAFETY ISSUES (Sheet 1 of 2)

PRIORITY 1

1. HYDROGEN GAS GENERATION IN 101-SY AND OTHER TANKS (23 TANKS)

   "Potential release of flammable gasses in concentrations above the lower flammability limit in conjunction with an ignition source (18 SSTs and 5 DSTs)"

2. POTENTIAL EXPLOSIVE MIXTURES OF FERROCYANIDE IN TANKS (24 TANKS)

   "Could the concentrations and distribution of ferrocyanide and nitrate/nitrite in the tanks lead to an explosion if allowed to heat up or if an uncontrolled exothermic reaction could occur (24 SSTs)"

3. POTENTIAL ORGANIC-NITRATE REACTION IN TANKS (8 TANKS)

   "High organic concentrations in the tanks could support an exothermic reaction at elevated temperatures (356°F/180°C)"

4. CONTINUED COOLING REQUIRED FOR HIGH HEAT GENERATION IN TANK 106-C (1 TANK).

   "Without water additions (in the event of a leak) the tank could exceed structural temperature limits resulting in potential tank collapse"

Note: Some tanks are in more than one category above

PRIORITY 2

"Issues/situations that have present (or contain) some conditions that could lead to an uncontrolled release of fission products under extreme assumptions"

- o Insufficient tank contents characterization to support evaluations
- o Inadequate safety documentation
- o Tank criticality concerns (New issue: not included in the FY 1991 Wyden Response on Tank Safety. Also, a USQ)
- o Maintenance and upgrade of tank farm facilities and equipment
- o Inadequate single-shell tank leak detection system
- o Instrument upgrades in single and double-shell tanks
- o Tank safe operating life
- o Single-shell tank emergency pumping
- o S-302-A leaking catch tank (Corrective Action: Complete, issue not officially closed)
- o Tank toxic vapor releases
- o Improvement in conduct of operations
- o Lack of plant essential drawings
- o Double-shell tank space requirements
- o Response to a leaking double-shell tank

TABLE 8. HANFORD SITE WASTE TANK FARM SAFETY ISSUES (Sheet 2 of 2)
PRIORITY 3
"Issues/situations that could lead to the future release of fission products if tanks are viewed as intermediate storage (5-30 years) of High-Level Waste (HLW), e.g., corrosion/leakage, operating practices, buried single wall transfer lines"
o Transfer line concrete encasement integrity and secondary containment compliance o AZ tank farm ventilation line o Excessive hydroxide consumption in Tank 107-AN o Sealing of single-shell tanks to prevent intrusions o Improved leak detection in double-shell tanks o Intertank ventilation connections

Information in Table 8 was excerpted from "Hanford Site Waste Tank Safety Issue Resolution Programs," presented by G. R. Wilson, Westinghouse Hanford Company, on May 28, 1992. The report, "U.S. Department of Energy Report to Congress on Waste Tank Safety Issues at the Hanford Site," June 1991, is the source of these safety issue priorities.

TABLE 9. SINGLE-SHELL TANKS MONITORING AND THERMOCOUPLE STATUS

Watch List & High Heat Load Tanks (>40,000 Btu/h)
Watch List Tanks Monitored Weekly
High Heat Tanks Monitored Monthly

Low Heat Load Tanks (<40,000 Btu/h)
Monitored Semiannually (Jan. & July)

		Category				Thermocouple (TC) Status			
						January 1992		July 1992	
	Tank No.	Watch List	Hi-Heat		Tank No.	Highest Temperature	No Readings	Highest Temperature	No Readings
1	101-A	Hydrogen		1	102-A	92		91	
2	104-A (1)		Hi-heat	2	103-A	117		115	
3	105-A (1)(2)		Hi-heat	3	106-A	136			(e)
4	101-AX	Hydrogen		4	102-AX (d)	77			(e)
5	103-AX	Hydrogen		5	104-AX	98		98	
6	103-B	Salts		6	101-B	111		106	
7	102-BX	FeCN		7	102-B	76		66	
8	106-BX	FeCN		8	104-B	66		64	
9	110-BX	FeCN		9	105-B	69			(e)
10	111-BX	FeCN		10	106-B	64		63	
11	101-BY	FeCN		11	107-B	62			(e)
12	103-BY	FeCN		12	108-B	65		62	
13	104-BY	FeCN		13	109-B	65		62	
14	105-BY	FeCN		14	110-B	66		71	
15	106-BY	FeCN		15	111-B		(a)	86	
16	107-BY	FeCN		16	112-B	67		63	
17	108-BY	FeCN		17	201-B	62			(e)
18	110-BY	FeCN		18	202-B	63			(e)
19	111-BY	FeCN		19	203-B	62			(e)
20	112-BY	FeCN		20	204-B	68			(e)
21	103-C	Salts		21	101-BX	71			(e)
22	105-C		Hi-Heat	22	103-BX		(a)		(a)
23	106-C (1)		Hi-Heat	23	104-BX		(c)		(c)
24	108-C	FeCN		24	105-BX	71			(e)
25	109-C	FeCN		25	107-BX		(a)		(a)
26	111-C	FeCN		26	108-BX		(a)		(a)
27	112-C	FeCN		27	109-BX		(a)		(a)

9 2 1 2 7 5 6 1 7 1 0

TABLE 9. SINGLE-SHELL TANKS MONITORING AND THERMOCOUPLE STATUS

Watch List & High Heat Load Tanks (>40,000 Btu/h)
Watch List Tanks Monitored Weekly
High Heat Tanks Monitored Monthly

Low Heat Load Tanks (<40,000 Btu/h)
Monitored Semiannually (Jan. & July)

		Category				Thermocouple (TC) Status			
						January 1992		July 1992	
	Tank No.	Watch List	Hi-Heat		Tank No.	Highest Temperature	No Readings	Highest Temperature	No Readings
28	102-S	Hydro/Salts		28	112-BX		(a)		(a)
29	111-S	Hydrogen		29	102-BY		(c)		(c)
30	112-S	Hydrogen		30	109-BY		(c)		(c)
31	101-SX	Hydrogen		31	101-C	88			(e)
32	102-SX	Hydrogen		32	102-C		(b)		(b)
33	103-SX	Hydrogen		33	104-C	83			(e)
34	104-SX	Hydrogen		34	107-C	124		123	
35	105-SX	Hydrogen		35	110-C	66		66	
36	106-SX	Hydro/Organic		36	201-C	66			(e)
37	107-SX		Hi-Heat	37	202-C	59			(e)
38	108-SX		Hi-Heat	38	203-C	52			(e)
39	109-SX (1)	Hydrogen	Hi-Heat	39	204-C		(b)		(b)
40	110-SX		Hi-Heat	40	101-S	122			(e)
41	111-SX		Hi-Heat	41	103-S	91		78 (f)	
42	112-SX		Hi-Heat	42	104-S	112		104	
43	114-SX		Hi-Heat	43	105-S	79		77	
44	101-T	FeCN		44	106-S	87		93	
45	107-T	FeCN		45	107-S	112			(e)
46	110-T	Hydrogen		46	108-S	94		91	
47	105-TX	Organic		47	109-S	77		75	
48	118-TX	FeCN/Organic		48	110-S	112			(e)
49	101-TY	FeCN		49	113-SX	80		74	
50	103-TY	FeCN		50	115-SX		(c)		(c)
51	104-TY	FeCN		51	102-T		(c)		(c)
52	103-U	Hydrogen		52	103-T	65		60	
52	105-U	Hydrogen		53	104-T	67			(e)
54	106-U	Salts		54	105-T		(c)		(c)

9 2 1 2 7 5 6 1 7 1 1

TABLE 9. SINGLE-SHELL TANKS MONITORING AND THERMOCOUPLE STATUS

Watch List & High Heat Load Tanks (>40,000 Btu/h)
Watch List Tanks Monitored Weekly
High Heat Tanks Monitored Monthly

	Tank No.	Category: Watch List	Category: Hi-Heat
55	107-U	Salts	
56	108-U	Hydrogen	
57	109-U	Hydrogen	

(1) These high heat tanks are monitored weekly. 241-C-106 & 241-SX-109 are also Watch List tanks.

(2) Tank 241-A-105 has 34 operating TCs in the soil beneath the tank.

Low Heat Load Tanks (<40,000 Btu/h)
Monitored Semiannually (Jan. & July)

		Thermocouple (TC) Status			
		January 1992		July 1992	
	Tank No.	Highest Temperature	No Readings	Highest Temperature	No Readings
55	106-T	66		61	
56	108-T		(a)		(a)
57	109-T		(b)		(b)
58	111-T	72		59	
59	112-T	66			(e)
60	201-T	65		62	
61	202-T	65		61	
62	203-T	65		63	
63	204-T	65		63	
64	101-TX		(c)		(c)
65	102-TX		(b)		(b)
66	103-TX		(b)		(b)
67	104-TX		(b)		(b)
68	106-TX		(b)		(b)
69	107-TX		(b)		(b)
70	108-TX		(b)		(b)
71	109-TX		(b)		(b)
72	110-TX		(b)		(b)
73	111-TX		(b)		(b)
74	112-TX		(b)		(b)
75	113-TX		(e)		(e)
76	114-TX		(b)		(b)
77	115-TX		(e)		(e)
78	116-TX		(c)		(c)
79	117-TX		(b)		(b)
80	102-TY	65			(e)
81	105-TY	81		80	

9 2 1 2 7 5 6 1 7 1 2

TABLE 9. SINGLE-SHELL TANKS MONITORING AND THERMOCOUPLE STATUS

Watch List & High Heat Load Tanks (>40,000 Btu/h)
Watch List Tanks Monitored Weekly
High Heat Tanks Monitored Monthly

Low Heat Load Tanks (<40,000 Btu/h)
Monitored Semiannually (Jan. & July)

Tank No.	Category: Watch List	Category: Hi-Heat		Tank No.	Thermocouple (TC) Status: January 1992 Highest Temperature	January 1992 No Readings	July 1992 Highest Temperature	July 1992 No Readings
			82	106-TY	65		64	
			83	101-U	67		68	
			84	102-U	86		87	
			85	104-U		(c)		(c)
			86	110-U	78		77	
			87	111-U	81		80	
			88	112-U	66		65	
			89	201-U (d)	65			(e)
			90	202-U	64			(e)
			91	203-U		(a)		(a)
			92	204-U		(a)		(a)
					57	35	35	57

Out-of-Service (O/S) Status
(a) All TCs failed
(b) No hookup to TC tree/cable cut from TC tree, etc.
(c) Nine tanks have no TC tree per WHC-SD-RE-TI-053, Riser Configuration Document, August 22, 1991.
(d) These tanks had only one operating TC in January 1992
(e) Work orders issued to repair thermocouples
(f) This tank had only one operating TC in July 1992

SUMMARY

	1/92	7/92
Watch List & High Heat Load Tanks (TCS in service)	57	57
Low Heat Load Tanks (TCs in service)	57	35
Low Heat Load Tanks (TCs out-of-service)	35	57
Total SST Tanks	149	149

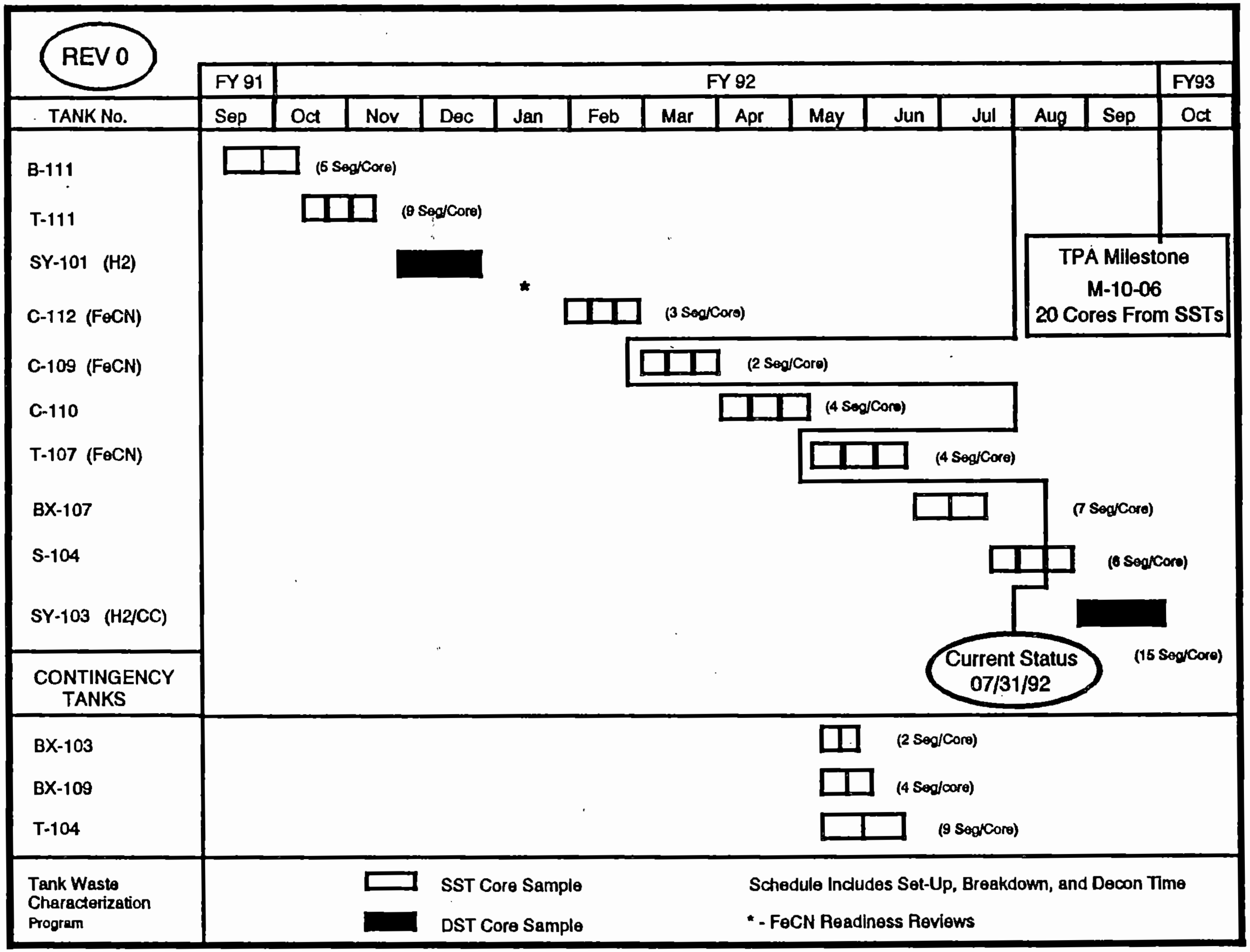

Figure 1. FY 92 Integrated Core Sample Schedule

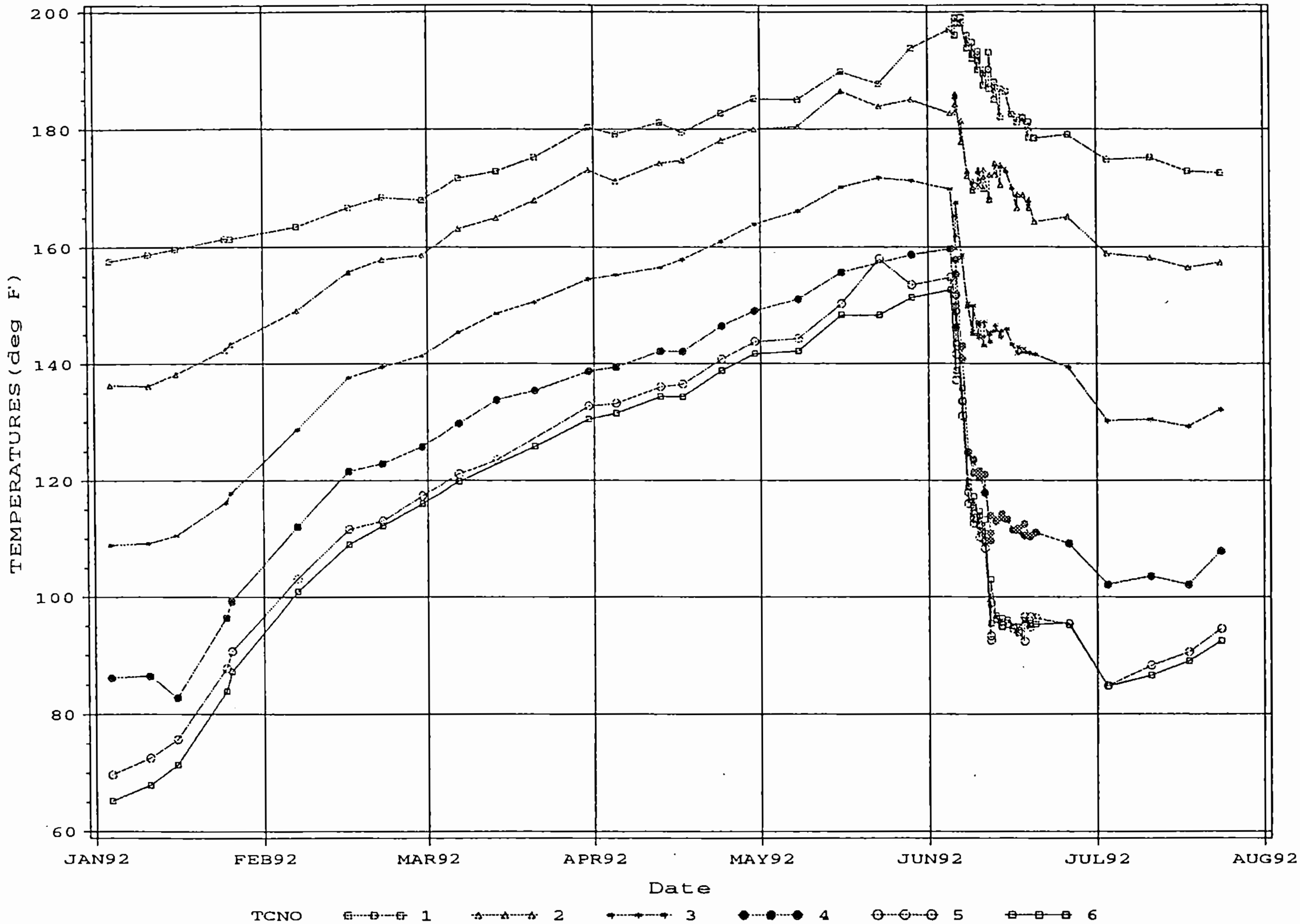

Figure 2. Temperatures in 241-C-106
(Exhauster O/S from January 25 to June 7, 1992)

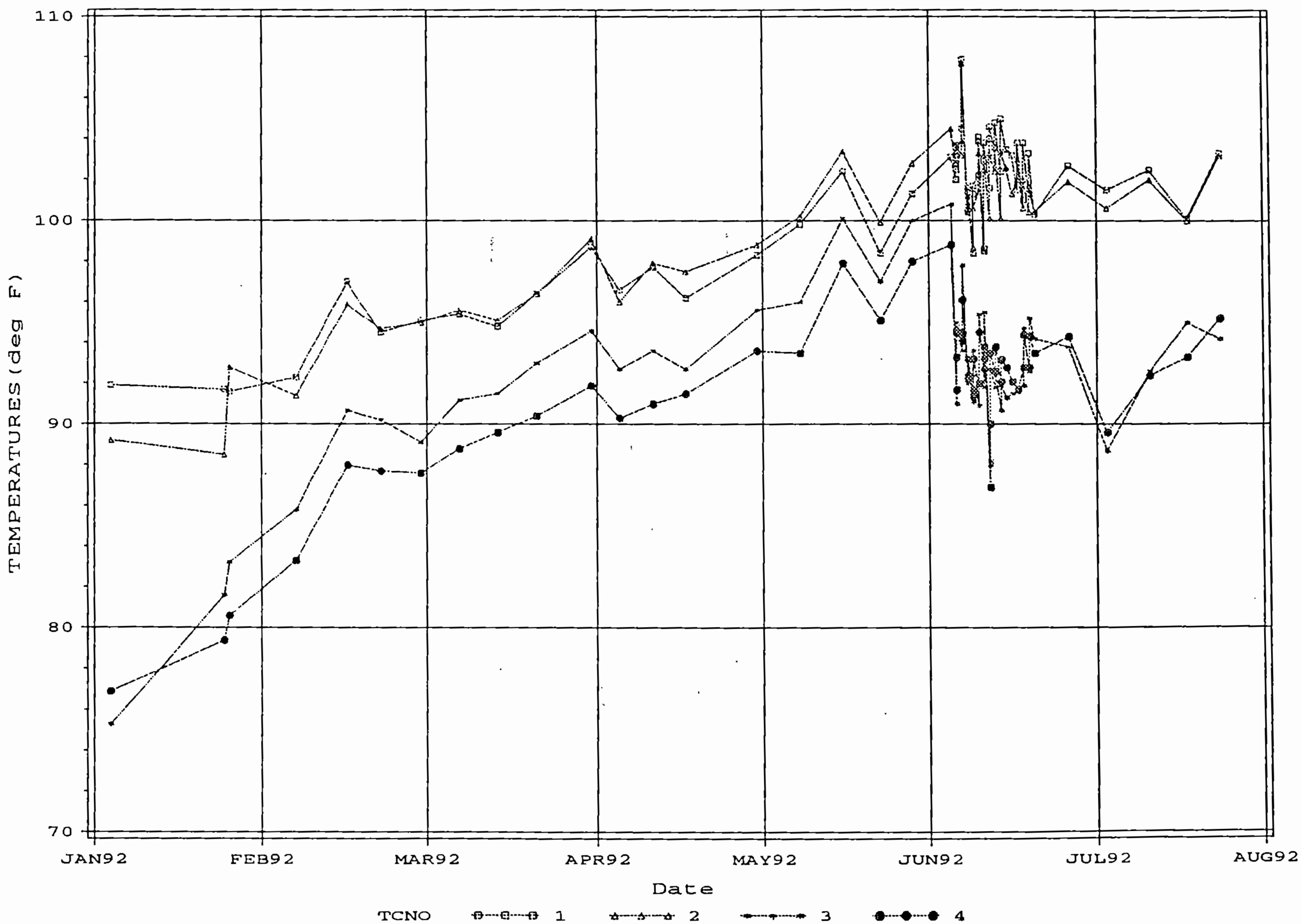

Figure 3. Temperatures in 241-C-105
(Exhauster O/S from January 25 to June 7, 1992)

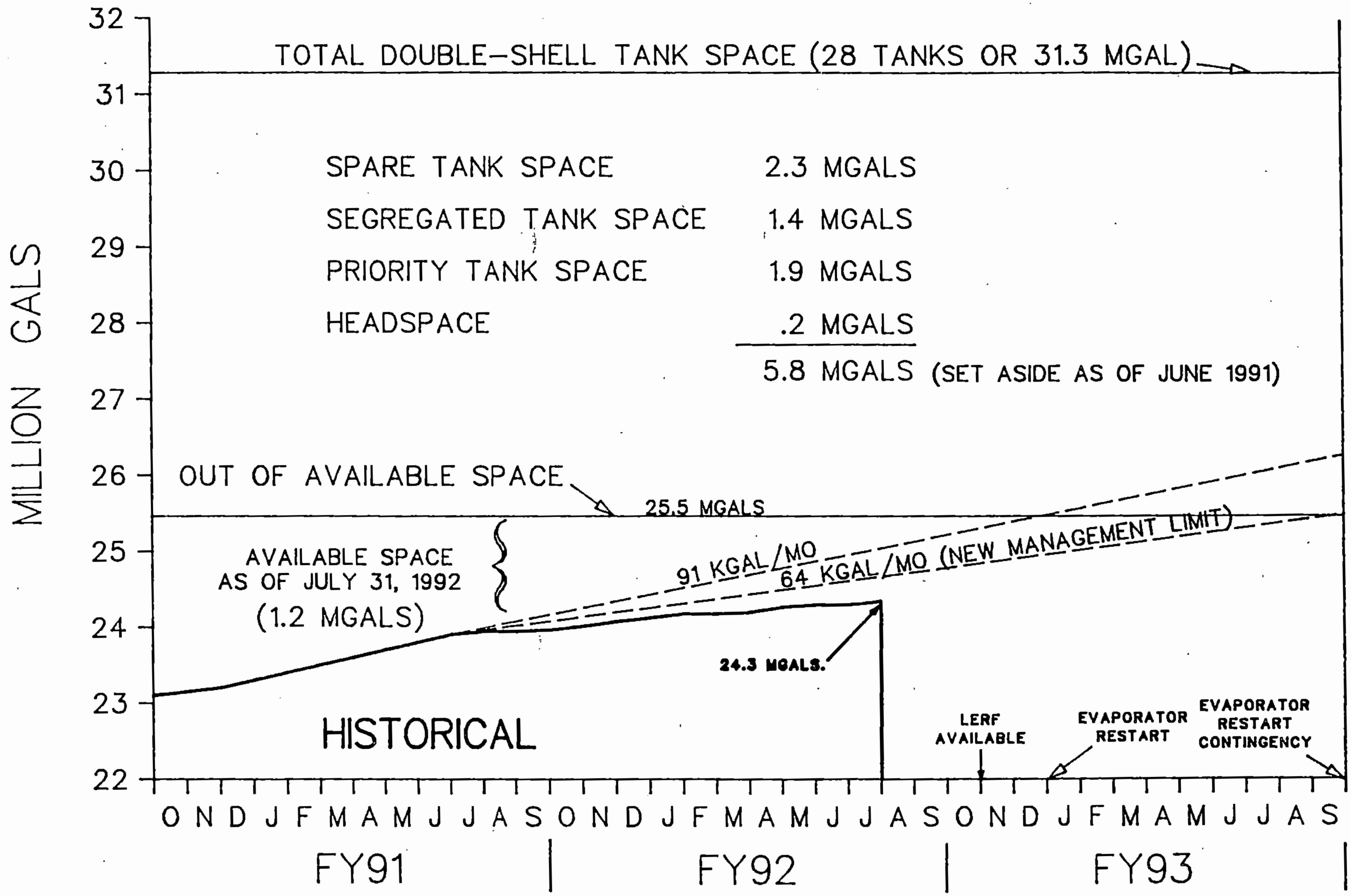

Figure 4. Current Status and Contingency Space for the 242-A Evaporator Restart

APPENDIX A

TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS

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TANK AND EQUIPMENT CODE/STATUS DEFINITIONS
July 1992

1. TANK STATUS CODES

WASTE TYPE

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

TANK USE (DOUBLE-SHELL TANKS ONLY)

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

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

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

3. DEFINITIONS

WASTE TYPES

Aging Waste (AGING)	High level, first cycle solvent extraction waste from the PUREX plant (NCAW).
Concentrated Complexant (CC)	Concentrated product from the evaporation of dilute complexed waste.
Concentrated Phosphate Waste (CP)	Waste originating from the decontamination of 100 N Area reactor. Concentration of this waste produces concentrated phosphate waste.
Dilute Complexed Waste (DC)	Characterized by a high content of organic carbon including organic complexants: ethylenediamine-tetraacetic acid (EDTA), citric acid, hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), and iminodiacetate (IDA) being the major complexants

	used. Main sources of DC waste in the DST system are saltwell liquid inventory.
Dilute Non-Complexed Waste (DN)	Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).
Double-Shell Slurry (DSS)	Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.
Double-Shell Slurry Feed (DSSF)	Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.
Non-complexed (NCPLX)	General waste term applied to all Hanford Site liquors not identified as complexed.
PUREX Decladding (PD/PN)	PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.
PFP TRU Solids (PT)	TRU solids fraction from PFP Plant operations.
Drainable Interstitial Liquid (DIL)	Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity.
Supernate	The liquid above the solids in waste storage tanks.
Ferrocyanide	A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[Fe(CN)_6]^{-4}$.

WASTE STATUS

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

STABILIZATION (Single-Shell Tanks only)

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

ISOLATION (Single-Shell Tanks only)

Partially Interim Isolated (PI)	The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.
Interim Isolated (II)	The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box.

TANK INTEGRITY

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

TANK INVESTIGATION

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

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 inputted to the Computer Automated Surveillance System (CASS).

Automatic FIC — An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually.

Annulus — The annulus is the space between the inner and outer shells on DSTs. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. Alarms from the annunciators are received by CASS. Continuous Air Monitoring (CAM) alarms are also located in the annulus. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW) — In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are constructed of fiberglass, tefzel-reinforced epoxy-polyester resin, sized to extend to within 1 in. of the bottom of the tank steel liner. They are sealed at their bottom ends and have a nominal outside diameter of 3.5 in. Three probes are used to monitor changes in the ILL: acoustic; gamma; and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 58 LOWs (57 are in operation) installed in SSTs that contain or are capable of containing greater than 50,000 gal of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs (102-SY and 103-AW Tanks only) are used for special surveillance purposes only.

Thermocouple (TC) A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete. These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, there may be one or more thermocouple trees installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

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

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

COLUMN HEADING

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

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APPENDIX B

TANK FARM CONFIGURATION, STATUS, AND FACILITY CHARTS

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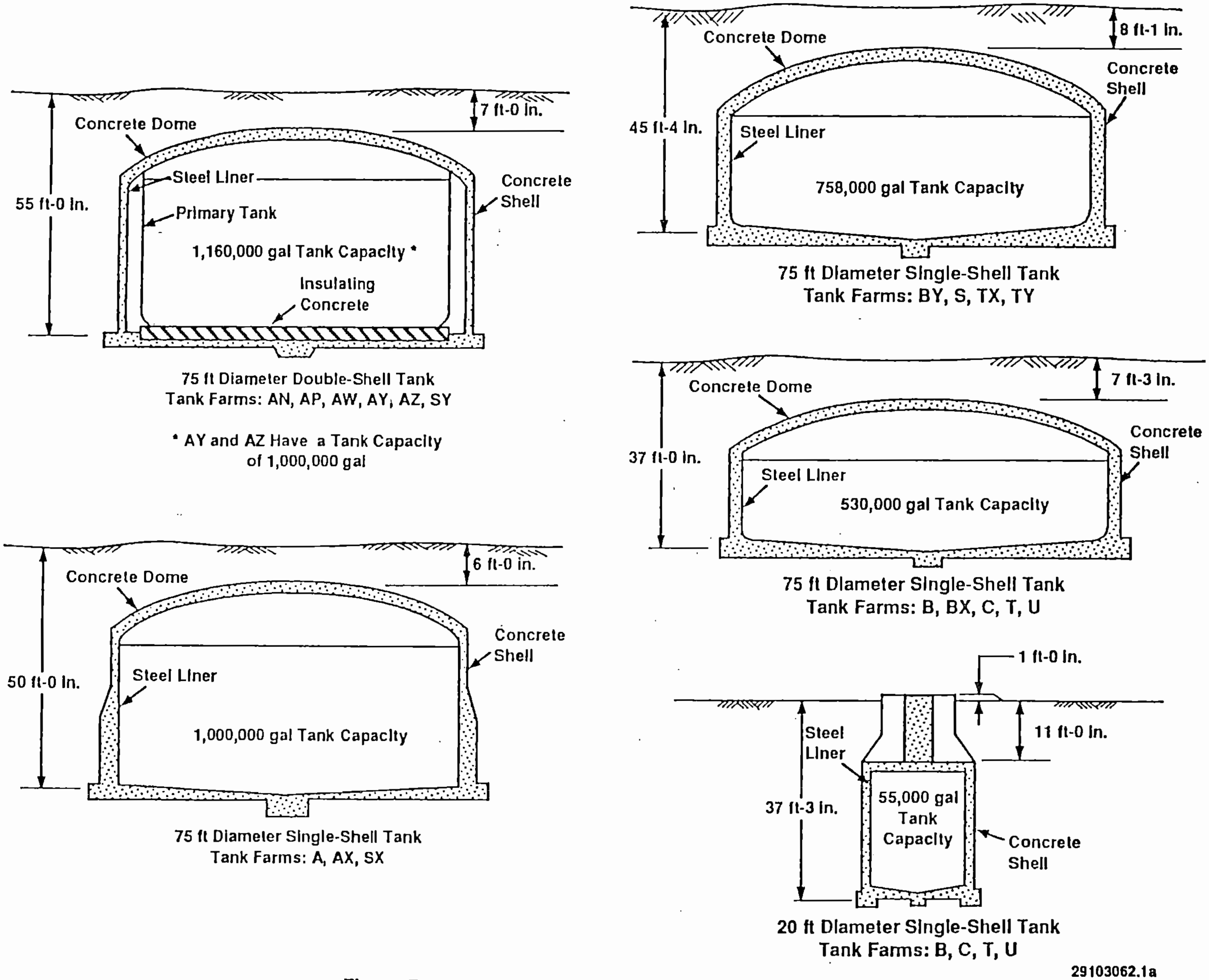

Figure B-1. High-Level Waste Tank Configuration

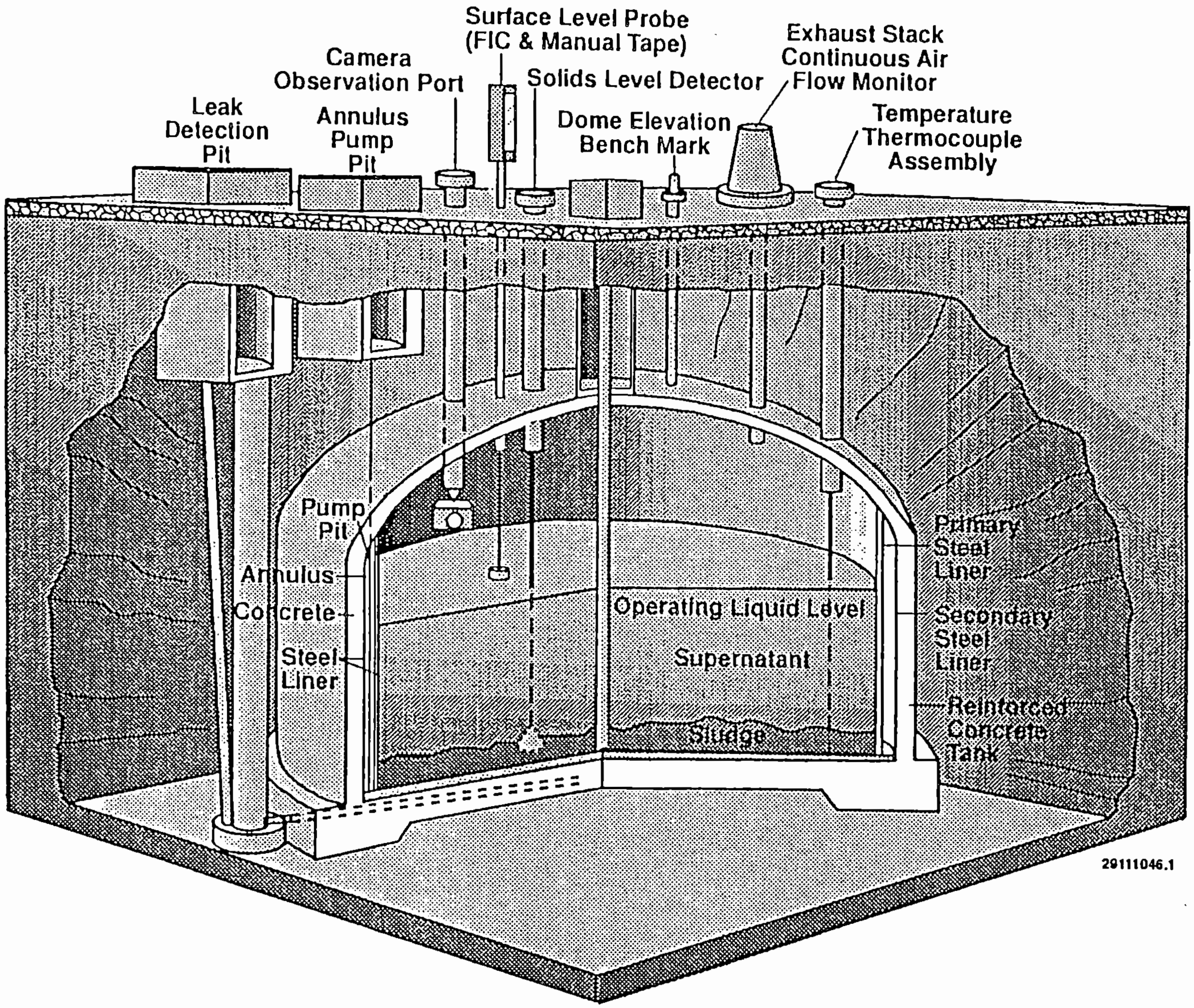

Figure B-2. Double-Shell Tank Instrumentation Configuration

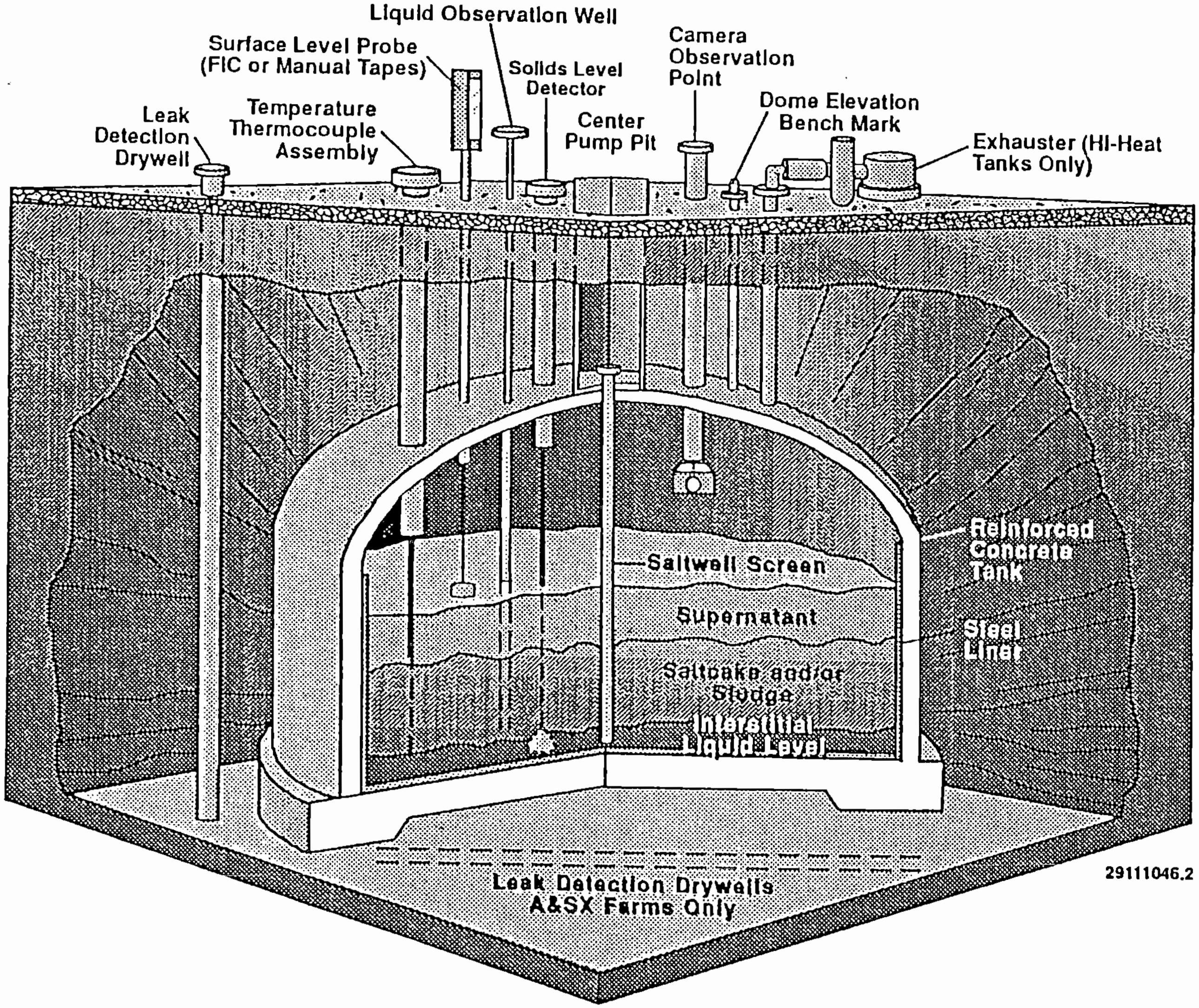

Figure B-3. Single-Shell Tank Instrumentation Configuration

9 2 1 2 7 5 6 1 7 3 0

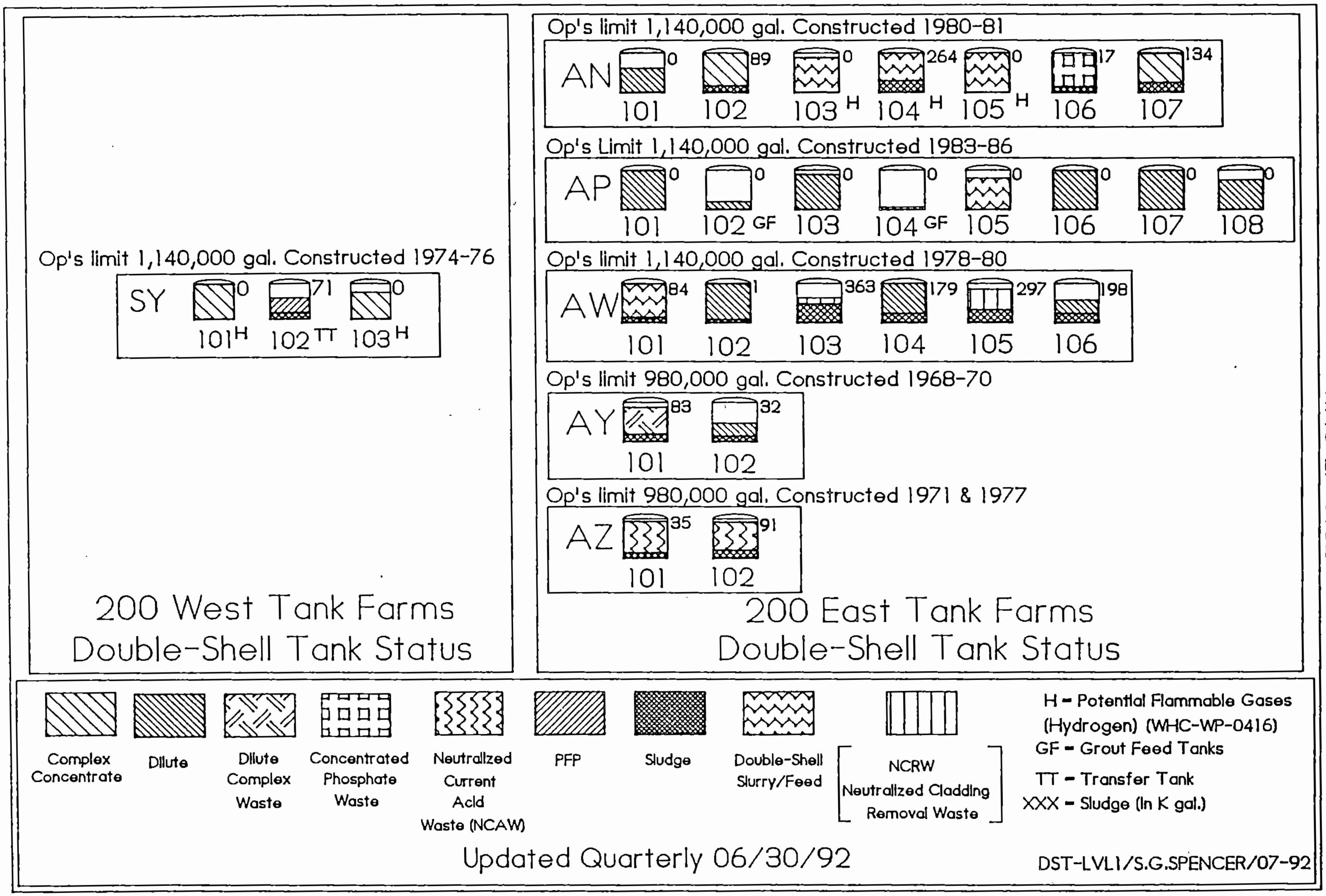

Figure B-4. Double-Shell Tank Status

9 2 1 2 7 5 6 1 7 3 1

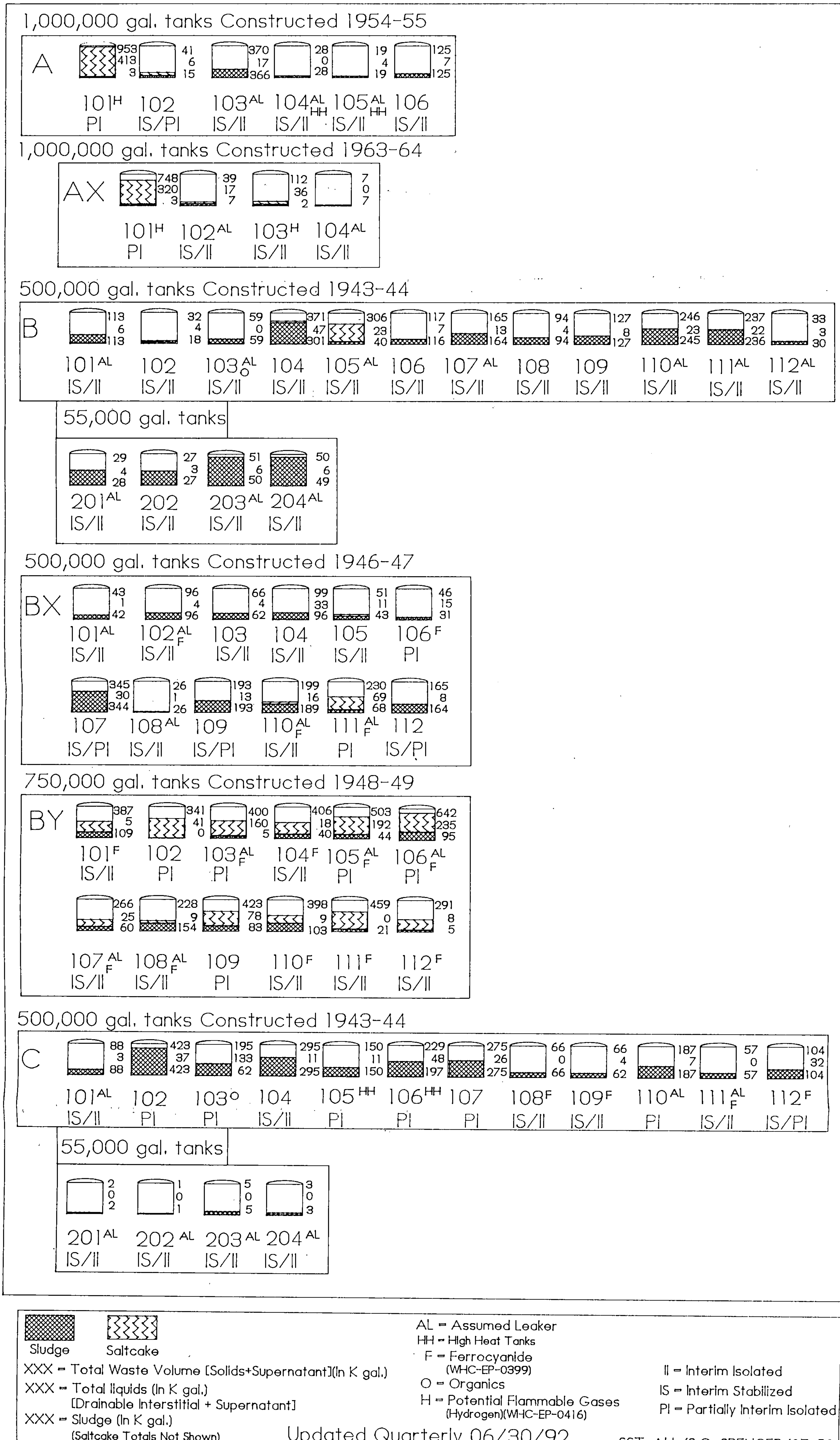

Figure B-5. 200E Single-Shell Tank Status

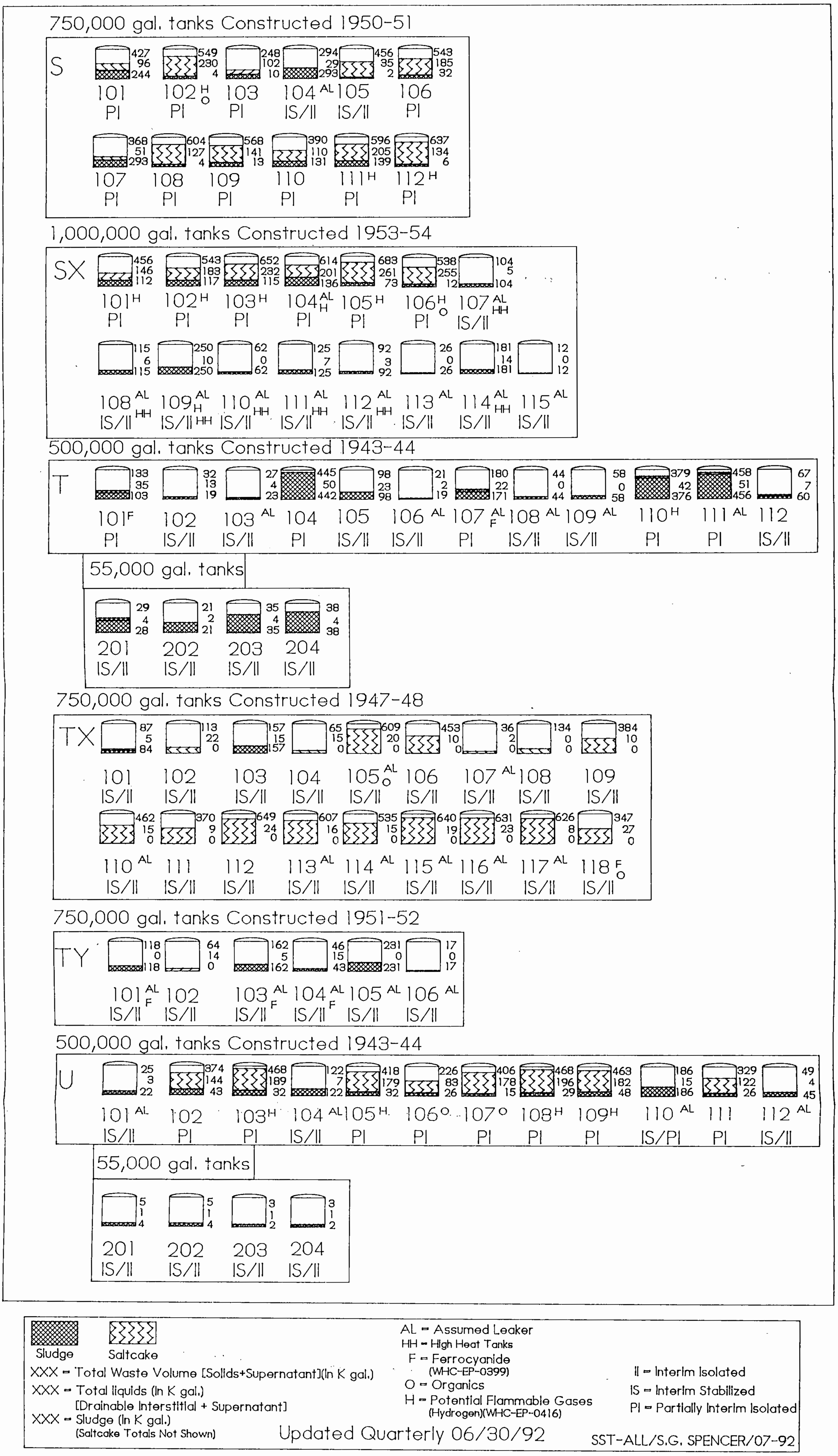

Fig. B-6. 200W Single-Shell Tank Status

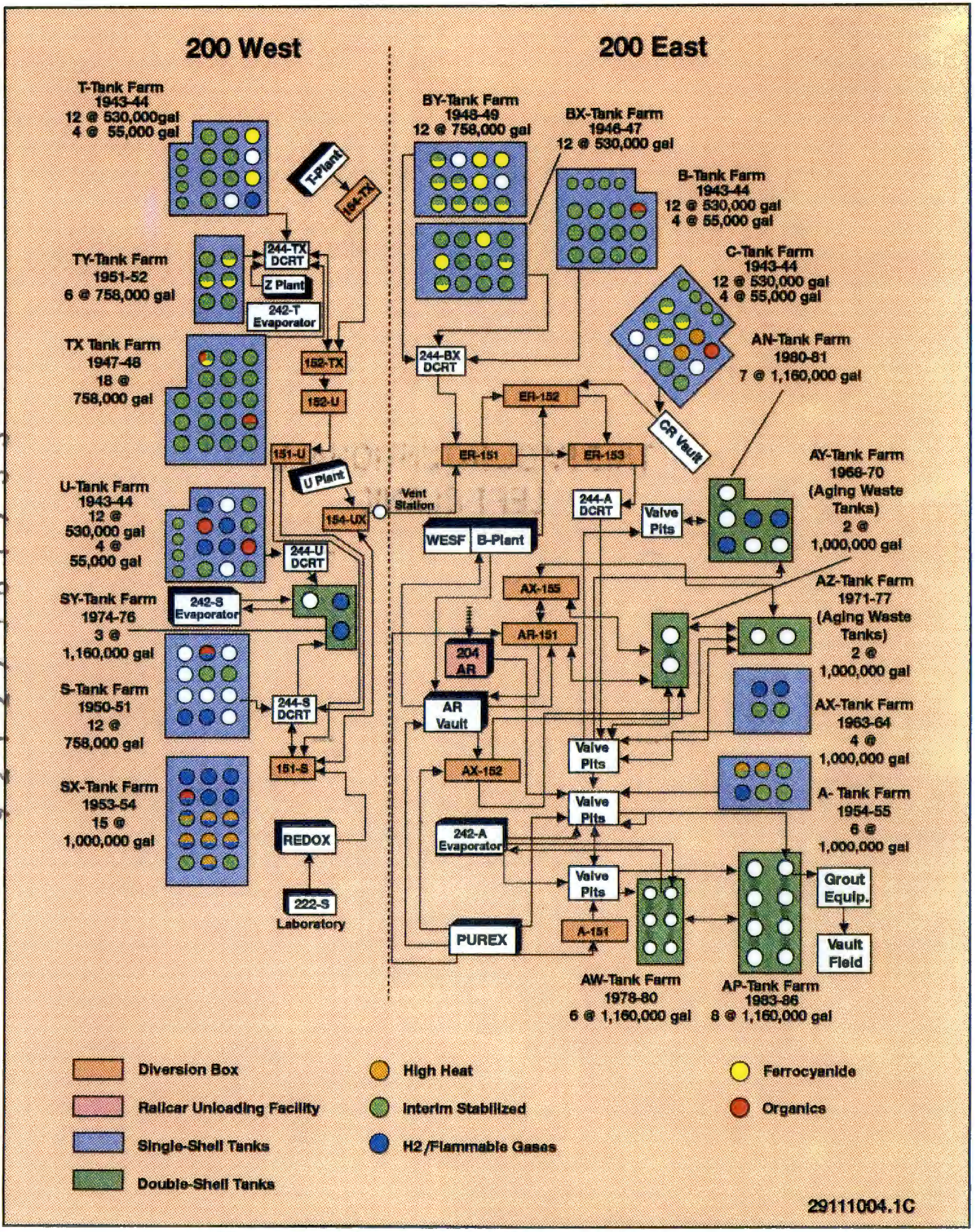

Figure B-7. Tank Farm Facilities – Quick Reference

9 2 1 2 7 5 6 1 7 3 3

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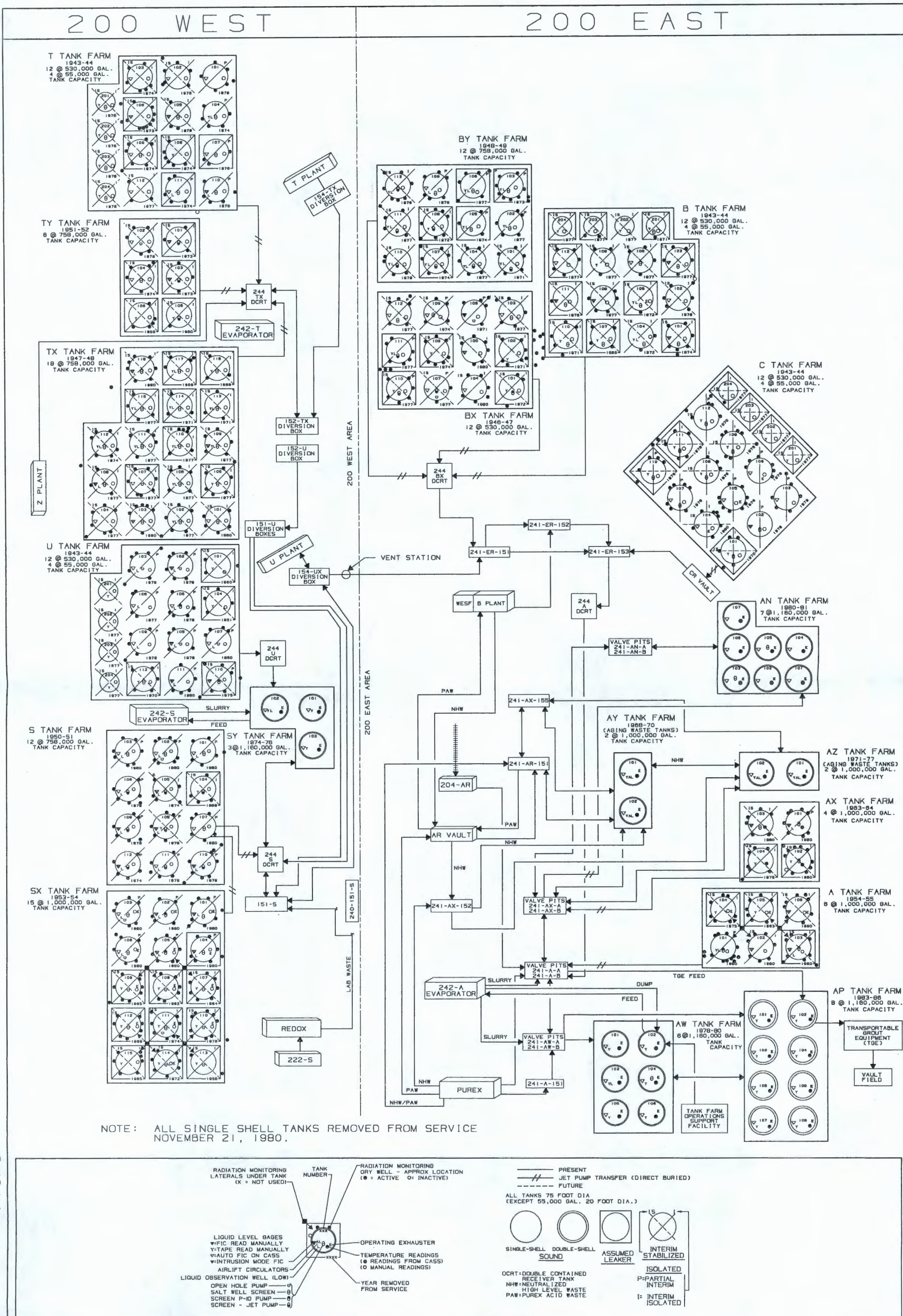

FIGURE B-8. HANFORD TANK FARM FACILITIES, UPDATED QUARTERLY, UPDATED 06/30/92.

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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

July 1992

	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	1742	0	1742	0	1742	1742
CC	Complexant concentrate waste	1957	219	2176	3	2173	2176
CP	Concentrated phosphate waste	996	0	996	0	996	996
DC	Dilute complexed waste	848	1	849	1	848	849
DN	Dilute non-complexed waste	8782	0	8782	0	8782	8782
DN/PD	Dilute non-complex/PUREX TRU solids	892	0	892	0	892	892
DN/PT	Dilute non-complex/PFP TRU solids	0	605	605	0	605	605
DSSF	Double-shell slurry feed	3824	48	3872	56	3816	3872
NCPLX	Non-complexed waste	234	310	544	544	0	544
TOTAL SUPERNATANT		19275	1183	20458	604	19854	20458
SOLIDS							
Double-shell slurry		937	1103	2040	0	2040	2040
Sludge		8206	6215	14421	12466	1955	14421
Saltcake		6577	17352	23929	23169	760	23929
TOTAL SOLIDS		15720	24670	40390	35635	4755	40390
TOTAL WASTE		34995	25853	60848	36239	24322	60848
AVAILABLE SPACE IN TANKS		5816	858	6674	0	6674	6674
DRAINABLE INTERSTITIAL		2253	4505	6758	6319	439	6758
DRAINABLE LIQUID REMAINING		21523	5688	27211	6918	20293	27211

(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

July 1992

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)

July 1992

			SUPERNATANT LIQUID VOLUMES										*SOLIDS VOLUME*			
TANK FARM	TOTAL WASTE	AVAIL SPACE	AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	DSS	SLUDGE	SALT CAKE	TOTAL
EAST																
A	1536	0	0	0	0	0	0	0	0	8	0	8	0	556	972	1528
AN	6962	1018	0	1954	996	0	638	0	0	1933	0	5521	937	504	0	1441
AP	6332	2788	0	0	0	0	5508	0	0	824	0	6332	0	0	0	0
AW	5385	1458	0	0	0	0	2103	892	0	1059	0	4054	0	1135	196	1331
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1496	464	0	0	0	848	533	0	0	0	0	1381	0	115	0	115
AZ	1872	88	1742	0	0	0	0	0	0	0	0	1742	0	130	0	130
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1559	0	0	0	0	0	0	0	0	0	50	50	0	1354	155	1509
BY	4744	0	0	0	0	0	0	0	0	0	0	0	0	719	4025	4744
C	2146	0	0	0	0	0	0	0	0	0	169	169	0	1977	0	1977
Total	34995	5816	1742	1957	996	848	8782	892	0	3824	234	19275	937	8206	6577	15720
WEST																
S	5680	0	0	0	0	0	0	0	0	17	29	46	0	1171	4463	5634
SX	4453	0	0	0	0	1	0	0	0	0	62	63	0	1532	2858	4390
SY	2562	858	0	219	0	0	0	0	605	0	0	824	1103	71	564	1738
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	25853	858	0	219	0	1	0	0	605	48	310	1183	1103	6215	17352	24670
TOTAL	60848	6674	1742	2176	996	849	8782	892	605	3872	544	20458	2040	14421	23929	40390

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

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

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 (Kgallons)	SALT CAKE (Kgallons)	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT
							++++++ AN FARM STATUS ++++++													
101AN	DN	SOUND	DRCVR	231.8	638	502	638	0	0.0	0.0	638	638	0	0	0	FM	S	08/22/89	0/ 0/ 0	
102AN	CC	SOUND	CWHT	397.1	1106	34	1017	3	0.0	0.0	1020	1017	0	89	0	FM	S	08/22/89	0/ 0/ 0	
103AN	DSS	SOUND	CWHT	346.2	952	188	15	0	0.0	0.0	15	15	937	0	0	FM	S	08/22/89	10/29/87	
104AN	DSSF	SOUND	CWHT	386.6	1058	82	794	25	0.0	0.0	819	797	0	264	0	FM	S	08/22/89	08/19/88	
105AN	DSSF	SOUND	CWHT	410.9	1124	16	1124	0	0.0	0.0	1124	1124	0	0	0	FM	S	10/22/84	01/26/88	
106AN	CP	SOUND	CWHT	368.4	1013	127	996	0	0.0	0.0	996	996	0	17	0	FM	S	08/22/89	0/ 0/ 0	
107AN	CC	SOUND	CWHT	389.7	1071	69	937	9	0.0	0.0	946	937	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6962	1018	5521	37	0.0	0.0	5558	5524	937	504	0					
							++++++ AP FARM STATUS ++++++													
101AP	DN	SOUND	DRCVR	386.1	1062	78	1062	0	0.0	0.0	1062	1062	0	0	0	FM	S	05/01/89	0/ 0/ 0	
102AP	DN	SOUND	GRTFD	49.5	136	1004	136	0	0.0	0.0	136	136	0	0	0	FM	S	07/11/89	0/ 0/ 0	
103AP	DN	SOUND	DRCVR	412.5	1134	6	1134	0	0.0	0.0	1134	1134	0	0	0	FM	S	10/13/88	0/ 0/ 0	
104AP	DN	SOUND	GRTFD	7.2	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	299.6	824	316	824	0	0.0	0.0	824	824	0	0	0	FM	S	02/02/89	0/ 0/ 0	
106AP	DN	SOUND	DRCVR	411.5	1131	9	1131	0	0.0	0.0	1131	1131	0	0	0	FM	S	10/13/88	0/ 0/ 0	
107AP	DN	SOUND	DRCVR	408.2	1122	18	1122	0	0.0	0.0	1122	1122	0	0	0	FM	S	10/13/88	0/ 0/ 0	
108AP	DN	SOUND	DRCVR	328.9	903	237	903	0	0.0	0.0	903	903	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	6332	2788	6332	0	0.0	0.0	6332	6332	0	0	0					

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

TANK STATUS				LIQUID VOLUME									SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLDG (Kgallons)	SALT CAKE (Kgallons)	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT
								++++++ AW FARM STATUS ++++++												
101AW	DSSF	SOUND	CWHT	414.8	1143	0	1059	2	0.0	0.0	1061	1059	0	84	0	FM	S	10/22/84	03/17/88	(1)
102AW	DN	SOUND	EVFD	377.2	1040	100	1039	0	0.0	0.0	1039	1039	0	1	0	FM	S	02/29/84	02/02/83	
103AW	DN/PD	SOUND	DRCVR	234.8	646	494	283	37	0.0	0.0	320	298	0	363	0	FM	S	02/01/89	0/ 0/ 0	
104AW	DN	SOUND	DRCVR	408.9	1125	15	835	49	0.0	0.0	884	862	0	179	111	FM	S	03/05/87	02/02/83	
105AW	DN/PD	SOUND	DRCVR	327.3	906	234	609	29	0.0	0.0	638	616	0	297	0	FM	S	03/05/87	0/ 0/ 0	
106AW	DN	SOUND	SRCVR	190.8	525	615	229	42	0.0	0.0	271	249	0	211	85	FM	S	01/31/92	02/02/83	
6 DOUBLE-SHELL TANKS				TOTALS:	5385	1458	4054	159	0.0	0.0	4213	4123	0	1135	196					
								++++++ AY FARM STATUS ++++++												
101AY	DC	SOUND	DRCVR	339.8	931	49	848	2	0.0	0.0	850	848	0	83	0	FM	S	02/02/87	12/28/82	
102AY	DN	SOUND	DRCVR	186.7	565	415	533	0	0.0	0.0	533	533	0	32	0	FM	S	02/10/88	04/28/81	
2 DOUBLE-SHELL TANKS				TOTALS:	1496	464	1381	2	0.0	0.0	1383	1381	0	115	0					
								++++++ AZ FARM STATUS ++++++												
101AZ	AGING	SOUND	CWHT	334.3	925	55	890	0	0.0	0.0	890	890	0	35	0	FM	S	09/30/90	08/18/83	
102AZ	AGING	SOUND	DRCVR	348.3	947	33	852	4	0.0	0.0	856	852	0	95	0	FM	S	06/04/92	12/24/84	
2 DOUBLE-SHELL TANKS				TOTALS:	1872	88	1742	4	0.0	0.0	1746	1742	0	130	0					

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

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 (Kgallons)	SALT CAKE (Kgallons)	LIQ VOL MTHD	SOL VOL MTHD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	CHANGE SINCE LAST MONTHLY REPORT
TANK STATUS				LIQUID VOLUME									SOLIDS VOLUME			VOLUME DETERMINATION				
								++++++ SY FARM STATUS ++++++												
101SY	CC	SOUND	CWHT	408.0	1137	3	47	237	0.0	0.0	284	278	530	0	560	FM	S	01/31/92	04/12/89	
102SY	DN/PT	SOUND	DRCVR	245.8	676	464	605	0	0.0	0.0	605	605	0	71	0	FM	S	05/12/87	04/29/81	
103SY	CC	SOUND	CWHT	271.4	749	391	172	0	0.0	0.0	172	172	573	0	4	FM	S	10/22/84	10/01/85	
3 DOUBLE-SHELL TANKS				TOTALS:	2562	858	824	237	0.0	0.0	1061	1055	1103	71	564					
GRAND TOTAL					24609	6674	19854	439			20293	20157	2040	1955	760					

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

(1) 101-AW - Total Waste/Equivalent Waste Inches exceeded the limits in this report because of the difference in instrument calibration of Manual Tape vs. FIC (Manual Tape is being used while FIC is O/S). This level does not exceed -357 operational limits or OSD specification limits (see below).

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

WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria."
WHC-OSD-T-151-00007, "Operating Specifications for 241-AN, AP, AW, AY, AZ, & SY Tank Farms."

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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
July 1992

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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
July 1992

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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	41	0.0	123.3	41	22	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		07/11/86	
106BY	NCPLX	ASMD LKR	/PI	642	0	235	0.0	0.0	235	213	95	547	P	MP	04/28/82		11/04/82	
107BY	NCPLX	ASMD LKR	IS/II	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82		10/15/86	

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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	78	0.0	93.5	78	57	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	780	0.0	1387.4	780	598	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	DC	SOUND	/PI	423	0	37	0.0	10.5	37	19	423	0	F	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	DC	SOUND	/PI	275	0	26	0.0	17.7	26	20	275	0	F	S	01/30/92	(2)	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	DC	ASMD LKR	/PI	187	0	7	0.0	8.6	7	5	187	0	F	FMP	03/01/92	(2)	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
July 1992

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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:	2146	169	143	0.0	36.8	312	254	1977	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	390	0	110	0.0	185.9	110	103	131	259	F	PS	05/14/92		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:	5680	46	1399	0.0	791.0	1445	1192	1171	4463						

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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	232	0.0	0.0	233	211	115	536	F	S	07/15/91		12/17/87	
104SX	DSSF	ASMD LKR	/PI	614	0	201	0.0	113.2	201	195	136	478	F	S	07/07/89		09/08/88	
105SX	DSSF	SOUND	/PI	683	0	261	0.0	0.0	261	238	73	610	P	F	04/28/82		06/15/88	
106SX	NCPLX	SOUND	/PI	538	61	194	0.0	0.0	255	233	12	465	F	PS	10/28/80		06/01/89	
107SX	NCPLX	ASMD LKR	IS/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	1261	0.0	113.2	1324	1178	1532	2858						

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

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
TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
				++++++ 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
July 1992

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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
July 1992

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	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
July 1992

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
TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
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						
GRAND TOTAL				36239	604	6319			6918	5443	12466	23169						

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

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

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

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

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APPENDIX D

PERFORMANCE SUMMARY

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

WASTE VOLUMES (Kgallons)

July 1992

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

SOURCE		THIS MONTH	FY1992 TO DATE
B PLANT		0	102
PUREX TOTAL (1)		21	67
PFP (1)		0	36
T PLANT (1)		36	66
S PLANT (1)		5	25
300/400 AREAS (1)		7	43
SULFATE WASTE - 100 N (2)		0	0
TANK FARMS & SWL (6)		0	158
Tank Farms	0		
Saltwell Liquid	0		
OTHER GAINS		26	303
Slurry increase (3)	5		
Condensate	17		
Instrument change (7)	0		
Unknown (5)	4		
OTHER LOSSES		-14	-345
Slurry decrease	-6		
Evaporation (4)	-6		
Instrument change (7)	0		
Unknown (5)	-2		
EVAPORATED		0	0
GROUTED		0	0
Total		81	455

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

(*) 106-C: Water added 7/2/92

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

SOURCE		THIS MONTH	FY1992 TO DATE
105-C (8)	Gains	0	2
	Losses	-1	-4
106-C (8) (*)	Gains	4	24
	Losses	4	-28
Total		-1	-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) (after conversion of Unit 1 to a cooler for Unit 2)	7965
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

Footnotes: See Next Page

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

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

(1) Including Flush

(2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste (Na_2SO_4).

(3) Slurry increase/growth is caused by gas generation within the waste. The gas which is trapped in the waste expands in the tank causing the surface level and volume to increase.

(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 (flushes are used to "clean out" pipelines and reduce personnel exposure, reduce potential for waste incompatibility, prevent line plugging, and reduce waste content of potential spills or leaks), and saltwell liquid, which results from pumping of single-shell tanks to double-shell tanks.

(7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC. These instrument changes are made when the automatic FIC is out of service and the reading from the manual tape is used for reporting purposes. The reported reading reverts back to the automatic FIC when it is repaired.

(8) Water is periodically added to 105-C and 106-C to provide evaporative cooling. Losses due to evaporation are calculated assuming all losses are evaporative losses. Drywell monitoring for leak detection is done quarterly on tank 105-C and weekly on tank 106-C. If there are any indications of a leak from these tanks, the assumption that all losses are due to evaporation will be reevaluated.

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 to promote in-tank boiling or evaporation. The ITS Unit 1 started up March 1965, and ITS Unit 2 started up February 1968. In August 1971, ITS Unit 1 was converted from an evaporator to a cooler for ITS Unit 2. Both units were shut down June 1974.

(11) Currently inoperative. The 242-S Evaporator-Crystallizer was started up November 1973, and shut down March 1980, when its processing campaign was completed. It is in standby mode with no future mission. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals.

(12) Currently inoperative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and has remained shut down for subsequent upgrading. A restart schedule was submitted to DOE for approval, specifying September 30, 1992, as the projected start-up date. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake).

(13) Currently inoperative. Additional concentration of wastes was completed by using the concentrators at REDOX and B Plant. The REDOX concentrator was used from July 1967 to June 1972, while the B Plant concentrator was used from July 1967 to February 1968.

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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)

July 1992

TANK FARMS	*SUPERNATANT LIQUID*	*DRAINABLE INTERSTITIAL LIQUID*	*DRAINABLE LIQUID REMAINING*	*PUMPABLE LIQUID REMAINING*
EAST				
A	8	439	442	390
AN	5521	37	5558	N/A
AP	6332	0	6332	N/A
AW	4054	159	4213	N/A
AX	3	370	373	304
AY	1381	2	1383	N/A
AZ	1742	4	1746	N/A
B	15	164	179	80
BX	50	155	205	135
BY	0	780	780	598
C	169	143	312	254
Total	19275	2253	21523	1761
WEST				
S	46	1399	1445	1192
SX	63	1261	1324	1178
SY	824	237	1061	N/A
T	74	189	263	208
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1183	4505	5688	3682
TOTAL	20458	6758	27211	5443 (1)

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

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

N/A = Not applicable

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APPENDIX F

PUMPING RECORD

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9 2 1 2 7 3 6 1 7 5 4

TABLE F-1. PUMPING RECORD

(Kgallons)
July 1992

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE
EAST			
A	0.0	0.0	150.5
AN	N/A	N/A	N/A
AP	N/A	N/A	N/A
AW	N/A	N/A	N/A
AX	0.0	0.0	13.0
AY	N/A	N/A	N/A
AZ	N/A	N/A	N/A
B	0.0	0.0	0.0
BX	0.0	0.0	68.9
BY	0.0	77.3 *	1387.4 *
C	0.0	36.8 **	36.8 **
Total	0.0	118.5	1697.4
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	0.0	118.5	3837.2

NA = Not Applicable

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

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

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APPENDIX G

CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

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

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

July 1992

FACILITY	LOCATION	PURPOSE (receives waste from:)	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
EAST AREA					
A-302-A	A FARM	151-A DB	1373	CASS/FIC	
311-ER	B PLANT	151-ER, 152-ER DB	3348	CASS/FIC	PUMPED JUNE 29, 1991
152-AX	AX FARM	152-AX DB	4669	MANUALLY	DIAL O/S, USING ZIP CORD
151-AZ	AZ FARM	152-AZ DB, AZ LOOP SEAL	2500	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	6124	MANUALLY	USING MANUAL TAPE FOR TANK
244-A-TK/SMP	AR VAULT	DCRT - RECEIVES FROM SEVERAL FARMS	2896	MCS	DIRECT GAL READING
204-AR	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	325	DIP TUBE	ALARMS ON CASS
417-A	A FARM	702-A PROCESS CONDENSATE	14160	DIP TUBE	
WEST AREA					
TX-302-C	TX FARM	154-TX DB	O/S	CASS/FIC	FIC O/S FROM 3/12/92 TO PRESENT
U-301-B	U FARM	151-U, 152-U, 153-U, 252-U DB	5958	CASS/FIC	
UX-302-A	U PLANT	154-UX DB	9029	CASS/MFIC	
241-S-304	S FARM	151-S DB	804	FIC	OPERATIONAL 10/91, REPLACED S-302-A
244-S-TK/SMP	S FARM	DCRT - RECEIVES FROM SEVERAL FARMS	7767	MANUALLY	CWF - PUMPED
244-TX-TK/SMP	TX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	12064	MANUALLY	CWF, TANK MANUAL TAPE O/S - PUMPED

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

July 1992

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

Total East Area inactive facilities 15

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

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

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

INACTIVE – no longer receiving waste transfers

July 1992

FACILITY	*LOCATION*	*RECEIVED WASTE FROM:*	*VOLUME OF CONTENTS (Gallons)*	*BY*	*REMARKS*
S-302	S FARM	240-S-151 DB	2198	CASS/FIC	ASSUMED LEAKER EPDA 85-04
S-302-A	S FARM	241-S-151 DB	O/S	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 to 35000	<140000 (m)	8/79	1991	(m)
241-SX-109 (6)	1965	<10000	<40000 (n)	5/81	1992	(n)
241-SX-110	1976	5500 (10)		8/79	1989	(g)
241-SX-111	1974	2000	2000 (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		<600,000 - 900,000 (9)				

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

FOOTNOTES: SEE NEXT PAGE

TABLE H-1. Single-Shell Tank Leak Volume Estimates.
(Sheet 2 of 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, Chapter 173-303 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington), any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated and moved into compliance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgal to 277 Kgal) is based on the following (see References):

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. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.

4. Reference (c) contains an estimate 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

(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

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

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 tank to be reviewed next is 241-SX-115.

(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 <u>or</u> 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 <u>assumption</u> 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)

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

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

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

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

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

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

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

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

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

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

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

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

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

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