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WHC-EP-0182-43

Tank Farm Surveillance and Waste Status Summary Report for October 1991

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

Westinghouse
Hanford Company Richland, Washington

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

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Tank Farm Surveillance and Waste Status Summary Report for October 1991

B. M. Hanlon

Date Published
January 1992

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TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR OCTOBER 1991

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. The intent of the report is to provide data on each of the existing 177 large underground waste storage tanks and 49 smaller catch tanks and special surveillance facilities, and to provide supplemental information regarding tank surveillance anomalies and ongoing investigations.

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CONTENTS

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LIST OF FIGURES

LIST OF TABLES

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 OCTOBER 1991

SUMMARY

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

TANK STATUS

Category	Quantity	Date of Last Change
In-Service Tanks[c]	28 double-shell	10/86
Out-of-Service Tanks[a]	149 single-shell	07/88
Assumed-Leaker Tanks	66 single-shell	09/88
Interim-Stabilized Tanks[b,d]	105 single-shell	09/90
Interim-Isolated Tanks[e]	98 single-shell	09/91

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

[b] Of the 105 tanks classified as interim stabilized, **56 are listed as assumed leakers.**

[c] Five double-shell tanks listed as "in service" are currently not receiving waste because of inclusion on the Hydrogen Watch List **and are thus prohibited from receiving waste in accordance with Public Law 101-510, Section 3137.**

[d] Of the 48 single-shell tanks on Watch Lists, 21 have been Interim Stabilized.

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

TANK INVESTIGATIONS

Tank 241-SY-101. The surface level within this tank continues to fluctuate. The surface level increase/decrease phenomena has been observed since 1981, and is attributed to the buildup and release of gas beneath the crusted surface. An investigation into solutions to the slurry growth problems is ongoing. Multiple Event Fact Sheets, a Critique Report, Occurrence Reports, Discrepancy Reports, and Unusual Occurrence Reports have been issued. The automatic Food Instrument Company (FIC) has been out of service since August 20, 1991, and the surface level is being measured with the manual tape and radar gauge. **The manual tape measurement showed a steady increase during September and October 1991 from 405.75 to 420.75 in.** In-tank videos show a crystal growth on the tip of the manual tape pencil plummet. This could account for some of the increase observed in the surface level measurement. **The radar gauge showed fluctuations in the surface level measurement between 410.70 in. and 414.30 in. for October 1991. These fluctuations are attributed to the crust movement.**

Potential or Assumed Leaks

Catch Tank 241-S-302-A. Surface level measurement decreases have been observed after noted increases attributed to rain. The decreases in this tank could not be accounted for and were assumed to be indicative of a leak. Event Fact Sheet TF-EFS-90-042 was issued June 8, 1990. Pumping of the tank commenced June 14, 1990, and Unusual Occurrence Report WHC-UO-90-23-TF-05 was issued June 21, 1990. Pumping was completed on July 13, 1990. At that time the surface level measurement device was touching on solids (surface level was 14.2 in.), and less than 400 gal of liquid remained in a visible pool. Total gallons pumped was 2,660. Occurrence Report WHC-90-B013-TFarm, an update to WHC-UO-90-23-TF-05 (TF-EFS-90-042), was issued November 12, 1990. Westinghouse Hanford Company and U. S. Army Corps of Engineers developed a plan to perform a temporary repair of this tank in order to support required transfers of facilities waste to the tank farms. This temporary repair, involving grout being added to the tank, would allow near-term transfers to proceed pending planned replacement with a new tank. The pouring of the first of three layers of grout was accomplished on February 26, 1991. The remaining pours were completed and 4,400 gal of water were added on March 20 to facilitate leak testing. Upon completion of the leak testing, the ultrasonic leak test data and the FIC gauge data was analyzed, and it was determined that the slow decrease in the liquid level was not the effect of temperature variations or evaporation. It was concluded that the catch tank is still leaking. On April 16, 1991, the tank was pumped to remove water that was added to perform the leak test. New criteria limits have been established for the tank, and the surface level will not be allowed to increase more than 0.5 in. from the baseline of 54.0 in. without attempting to pump. On June 4, 1991, the surface level increased to 54.7 in., exceeding the 0.5-in. increase criteria by 0.2 in. Occurrence Report RL-WHC-TANKFARM-191-1018 was issued June 5, 1991. The increase was attributed to an intrusion of approximately 90 gal of water that had leaked from a faulty hose connection to a diversion box which drains directly into S-302-A. This occurred during maintenance activities to install a replacement catch tank for S-302-A. On June 12, 1991, the tank was pumped. The surface level measurement remained stable at 54.5 in. through October 1991. The tank has been isolated, but will continue to be monitored. **The new catch tank, S-304, was placed in operation during the last week of October 1991. Operational Testing Procedures (OTP) are still being performed.** The first waste transfer to be scheduled will be from the 244-TX tank to Tank 241-SY-102. **Catch Tank 241-S-302-A will not appear on future reports.**

Potential or Assumed Intrusions:

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

Tank 241-TX-115. The Liquid Observation Well (LOW) scans revealed an Interstitial Liquid Level (ILL) increase in excess of the established 0.4 ft increase criteria in May 1987. Comparison of past and present in-tank photographs show no significant change in surface conditions or obvious evidence of intrusion. An Event Fact Sheet was issued on January 9, 1990. The ILL showed an increase of 0.4 ft on March 1, 1991. The increase was verified on March 11, 1991. Engineering Testing is conducting an intrusion investigation for this tank. These LOWs are monitored quarterly, alternating every six weeks with the neutron and gamma probes. No further increase of the ILL has been observed since March 1, 1991. The LOW was last scanned with the neutron probe on September 6, 1991.

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

HIGHLIGHTS

1. Saltwell Pumping

Saltwell pumping resumed in 102-BY on October 11, 1991. Changes in liquids and solids can be found in Appendix C (Inventory and Status by Tank, Single-Shell Tanks) and the Changes section immediately following Appendix C.

2. Ferrocyanide Tank Temperature Monitoring

A Defense Nuclear Facilities Safety Board milestone was met with the completion of the installation of a continuous temperature monitoring system for five ferrocyanide tanks in BY Tank Farm. The installation of the monitoring system in additional tanks is continuing.

3. Defense Nuclear Facilities Safety Board Meeting

The Defense Nuclear Facility Safety Board Meeting on Hanford Waste Tank Issues was held October 29, 1991. Subjects included Ferrocyanide Tank Instrumentation, Tank Sampling Schedule and Stabilization Program Status, Tank 101-SY Activities, and High-Heat Tank History and Plans.

Following are excerpts from the presentations made at this meeting:

FACILITY UPGRADES 1991 MAJOR ACCOMPLISHMENTS

- Replaced leaking 302-A catch tank
- Installed 11 new change trailers with monitoring equipment
- Completed alarm panel upgrades in AW Tank Farm and verification in A Complex
- Upgraded 376 drawings to as-built conditions
- Housekeeping improvements

Ferrocyanide Tank Reactions

a) $Na_2NiFe(CN)_6 + 6NaNO_3 \rightarrow FeCO_3 + NiCO_3 + 4Na_2CO_3 + 6N_2$

$\Delta H = -728$ kcal

b) $Na_2NiFe(CN)_6 + 9NaNO_3 \rightarrow FeO + NiO + 5.5Na_2CO_3 + 7.5N_2O + .5CO_2$

$\Delta H = -514$ kcal

c) $Na_2NiFe(CN)_6 + 10NaNO_3 \rightarrow FeO + NiO\ \ 6Na_2CO_3 + 6N_2O + 4NO$

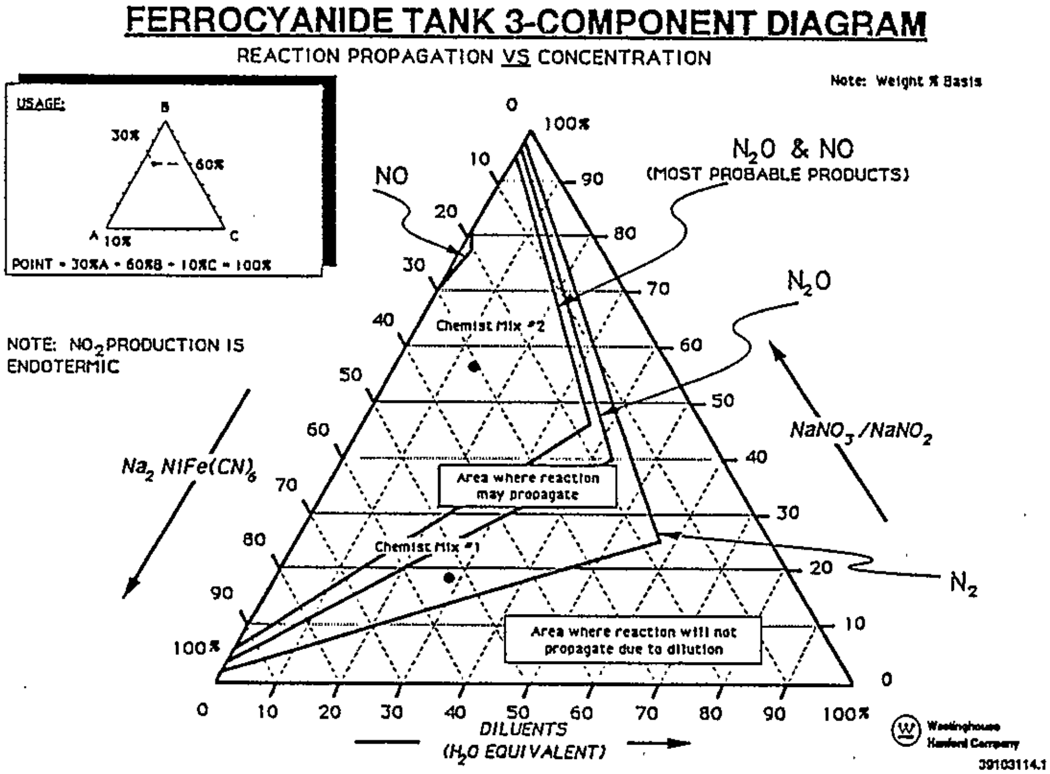
$\Delta H = -435$ kcal

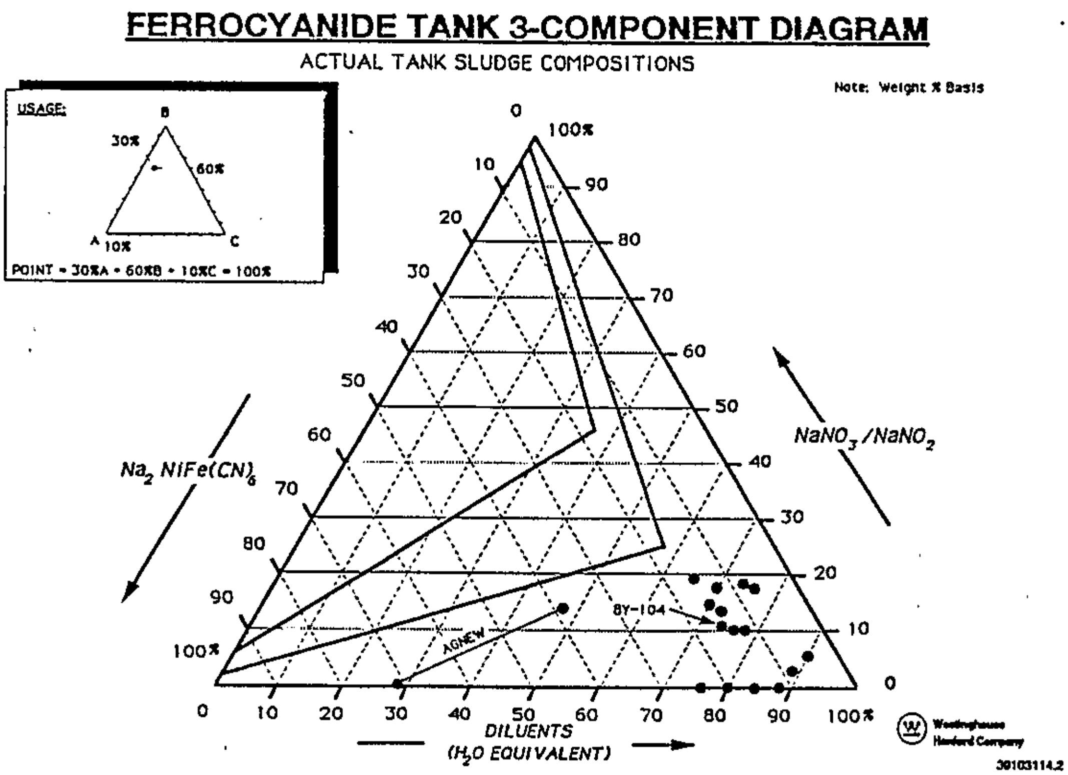
d) $Na_2NiFe(CN)_6 + 14NaNO_3 + 2H_2O \rightarrow FeO + NiO + 6Na_2CO_3 + 20NO + 4NaOH$

$\Delta H = -54$ kcal

e) $Na_2NiFe(CN)_6 + 54NaNO_3 + 22H_2O \rightarrow FeO + NiO + 6Na_2CO_3 + 60NO_2 + 44NaOH$

$\Delta H = +1490$ kcal





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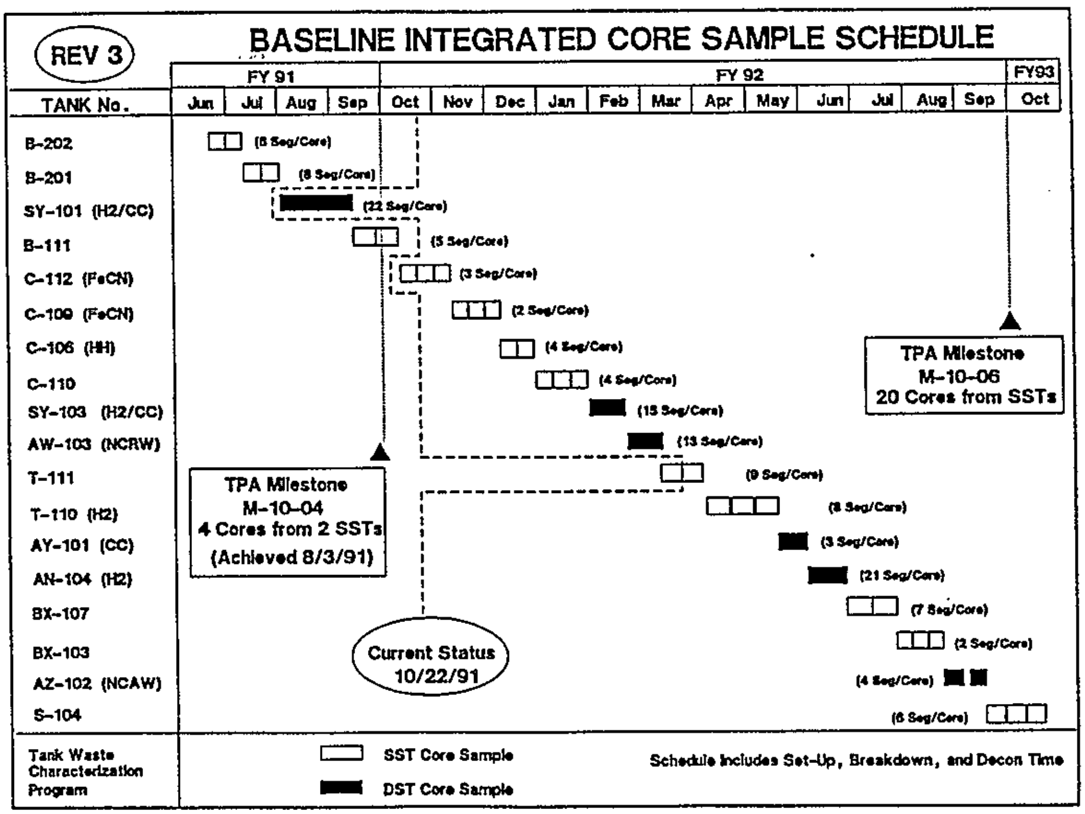
SUMMARY OF FECN HEAT GENERATION STUDIES

Qbase BTU/hr	Chem Heat	Qhot BTU/hr	K crust	K damp	K wet	K spot	Max T °F	Heat Conct	Hot Spot Location
5500	no	500	.10		.27	.10	320	110x	9" below crust
5500	no	500	.10		.27	.27	330	110x	on bottom
5500	no	800	.10		.27	.10	350	199x	on bottom
5500	no	550	.10		.27	.10	350	120x	on bottom, dry around
8000	no	1000	.16	.21	.27	.16	350	150x	on bottom
8000	no	1000	.16	.21	.27	.16	352	150x	on bottom, dry over
8000	no	800	.16	.21	.27	.16	350	120x	on bottom, dry around
8000	yes	0	.16	.21	.27		136	1x	no hot spot, chem heat
8000	yes	260	.10	.10	.10	.10	289	39x	on bottom, completely dry



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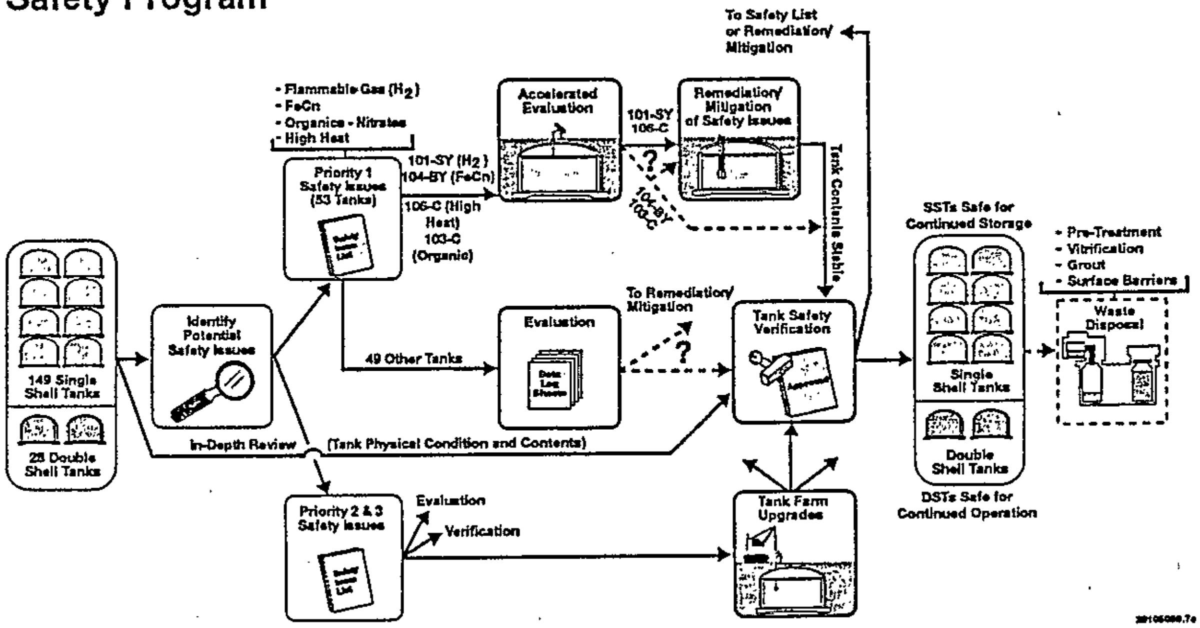
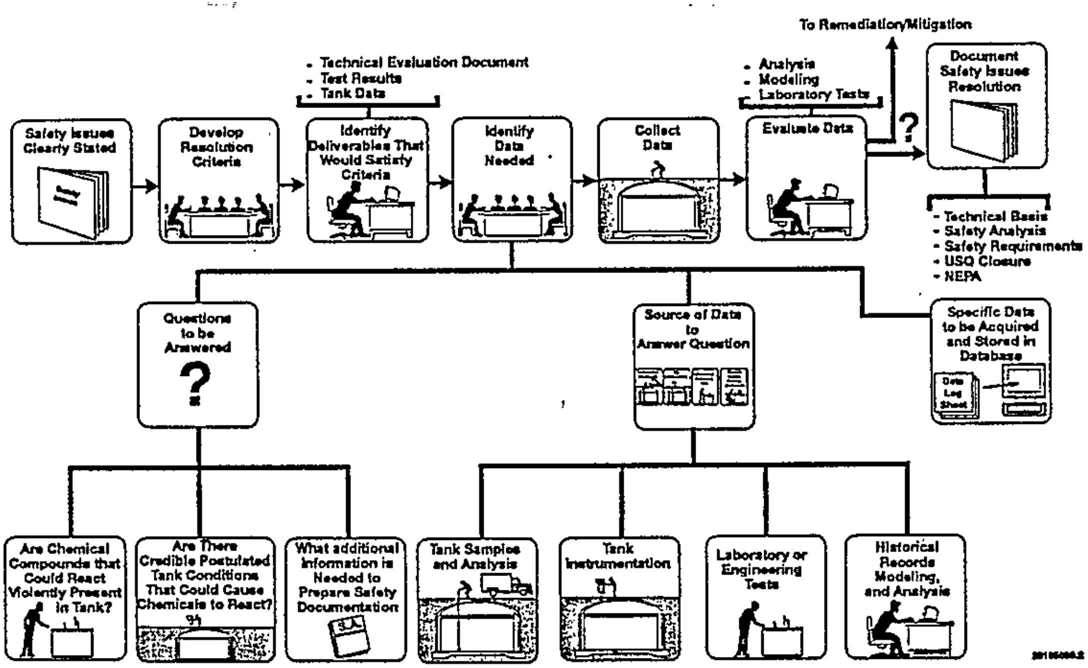
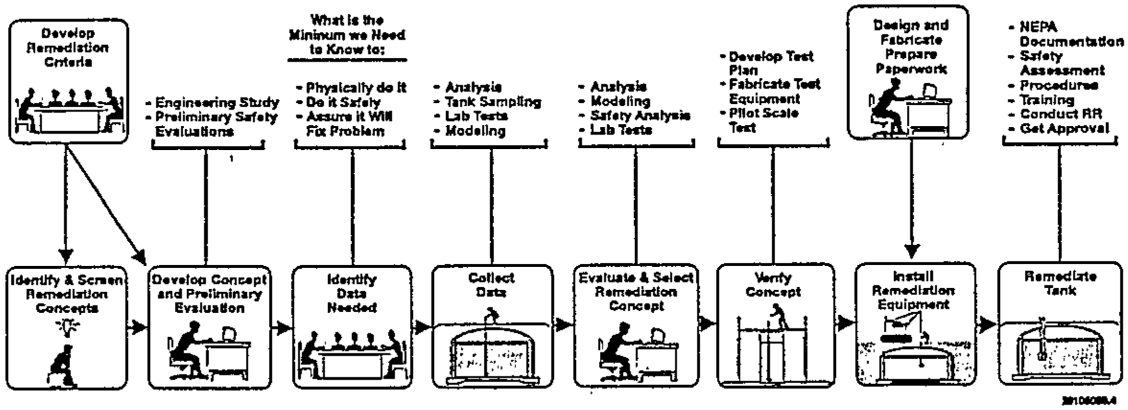
Waste Tank Safety Program



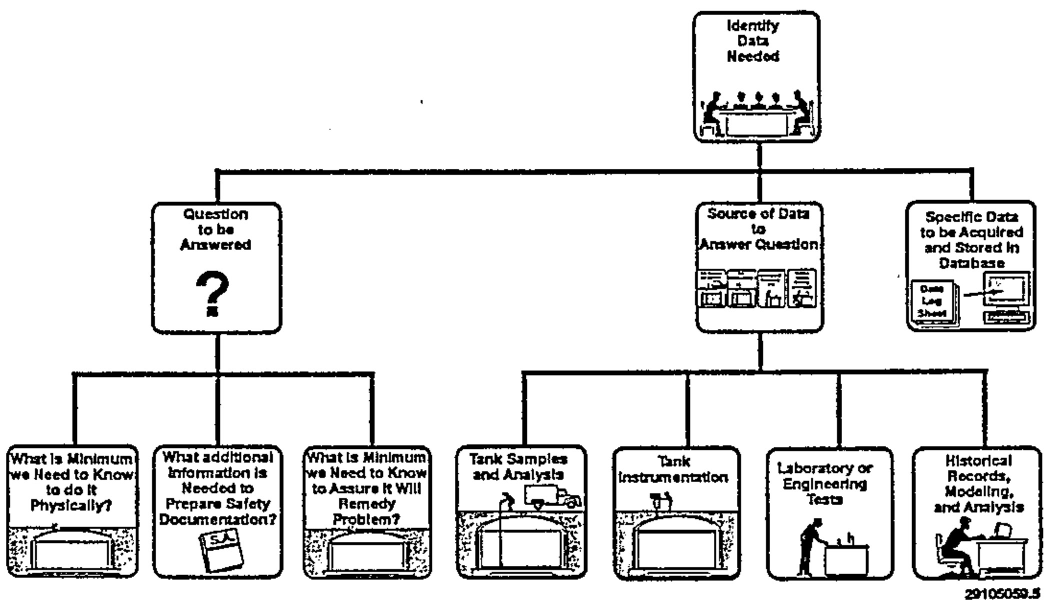
Evaluation



Remediation/Mitigation of Safety Issues



Identifying Data Needed



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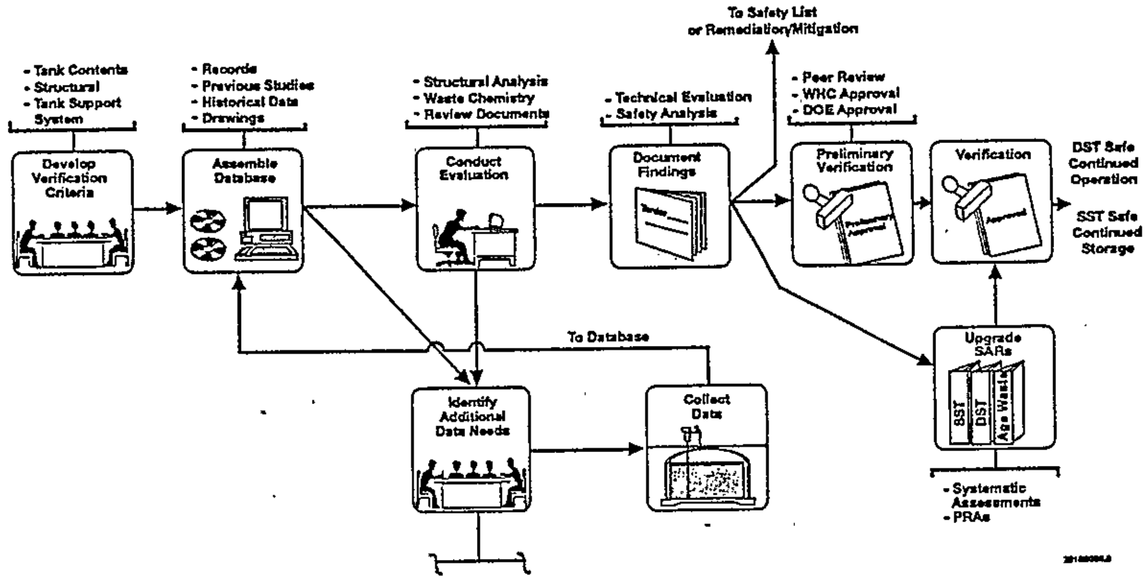
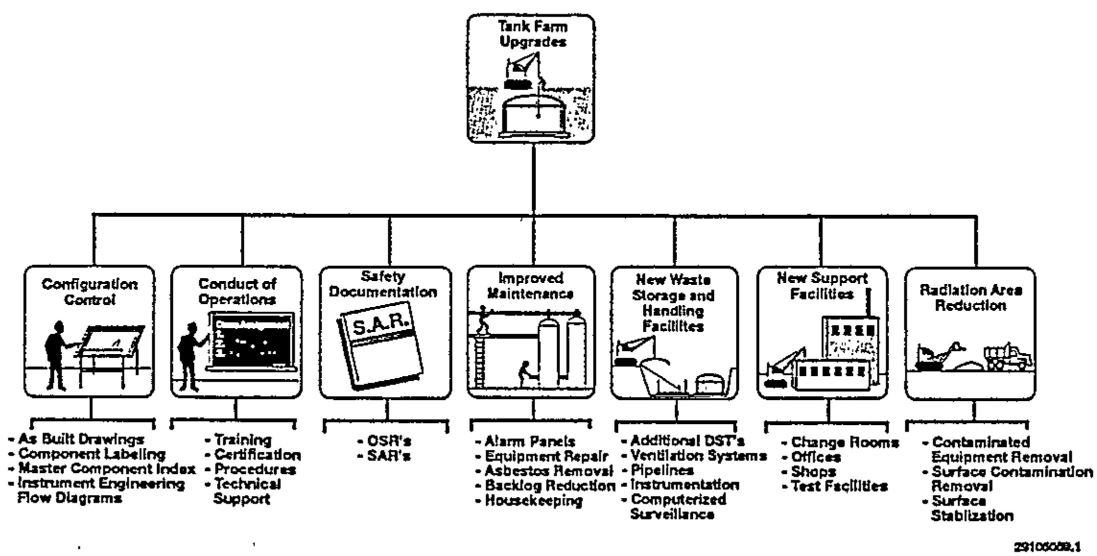
Tank Safety Verification



Tank Farm Upgrades



FERROCYANIDE 1991 MAJOR ACCOMPLISHMENTS

- Hot spots improbable from chemical or decay heat
- Increased confidence that initiation temperatures for ferrocyanide-nitrate reactions are far above waste temperatures
- Effects of moisture and dilution being defined
- Installed continuous monitoring on 5 BY Farm tanks
  - Confirmed low temperatures and trends from earlier readings

FERROCYANIDE 1991 MAJOR ACCOMPLISHMENTS (Continued)

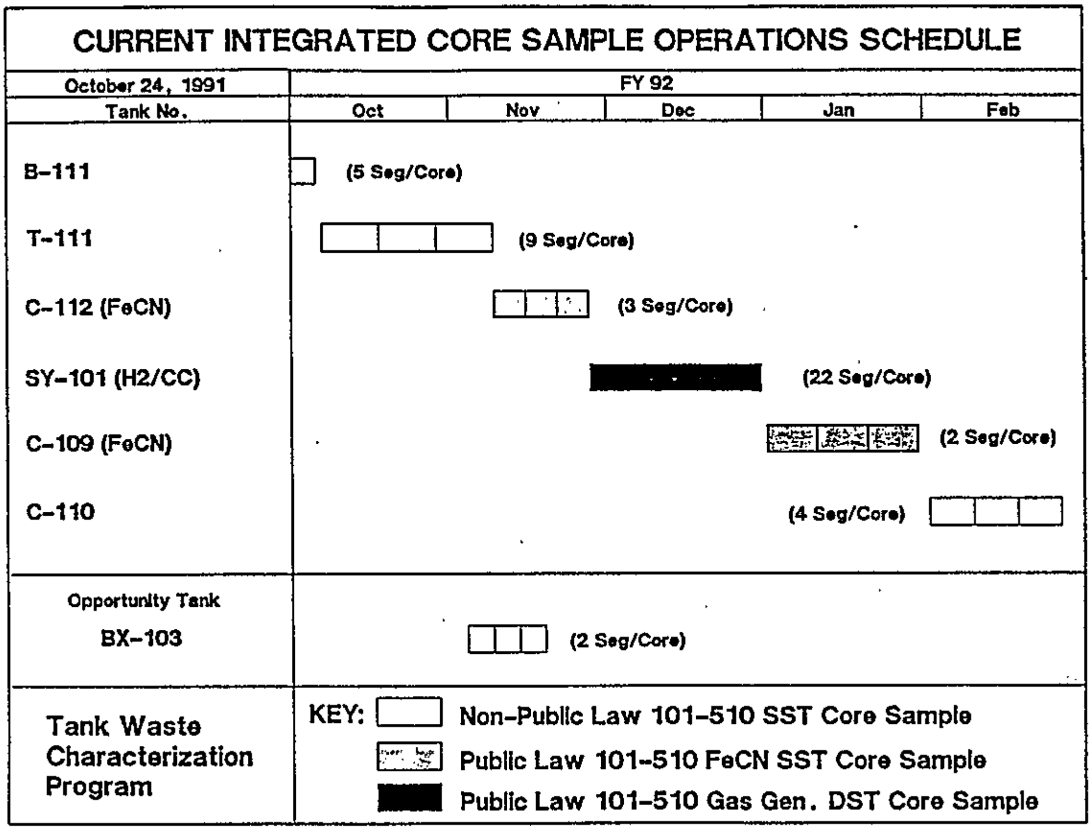
- Completed emergency exercise and procedures
- Began vapor space sampling and approaching readiness for auger sampling
- Began "white paper" to document current understanding of ferrocyanide safety issue and chart future direction of Program

TANK 241-SY-101 1991 MAJOR ACCOMPLISHMENTS

- Obtained crust and core samples
- Greatly increased knowledge of crust from TV camera and analyses
- Installed new instrumentation
- Improved data acquisition and processing
- Broadened technical support - insight on mechanism
- Added focus to mitigation

TRI-PARTY AGREEMENT 1991 MAJOR ACCOMPLISHMENTS

- Obtained 8 SST core samples
- Completed first TV inspection of annulus in 6 DSTs
- Overall, completed 8 of 9 milestones on schedule



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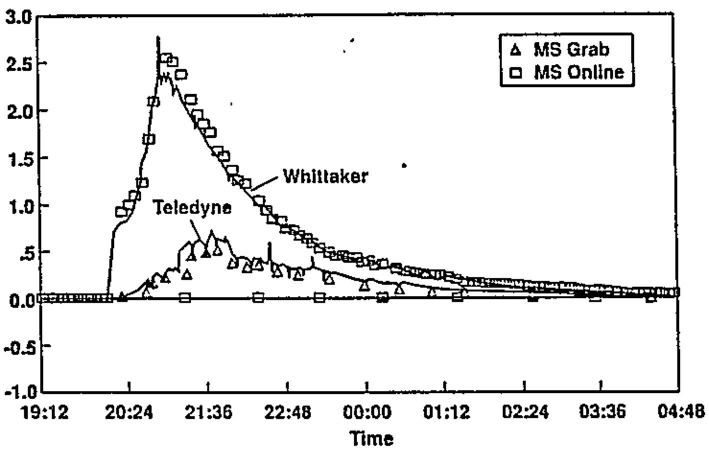
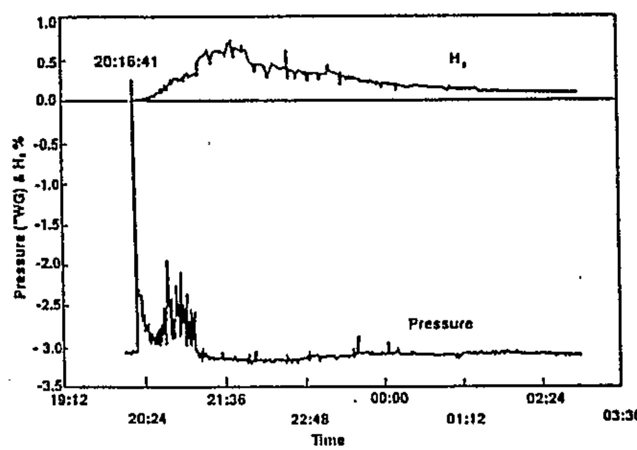
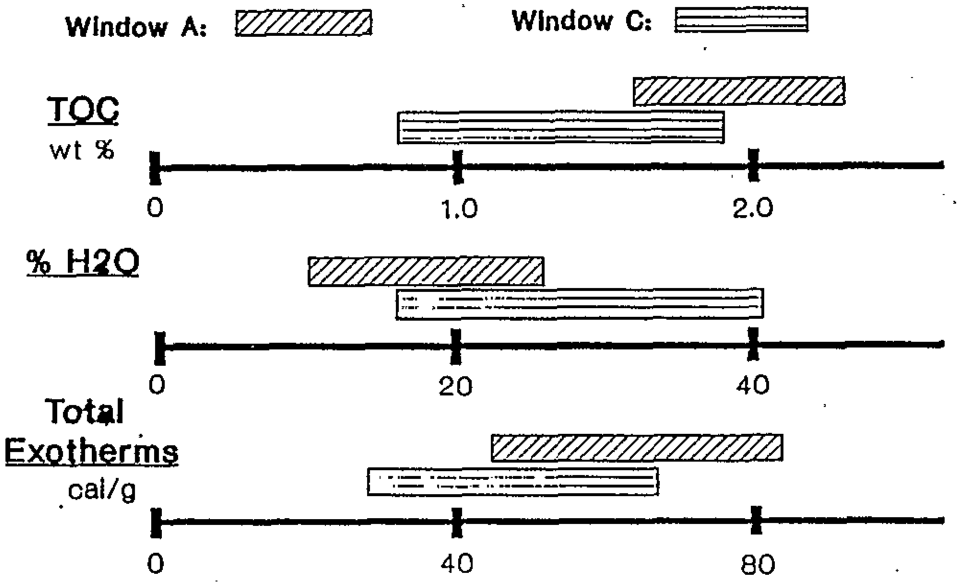
Hydrogen Release Profile
May 1991 Gas Release Event



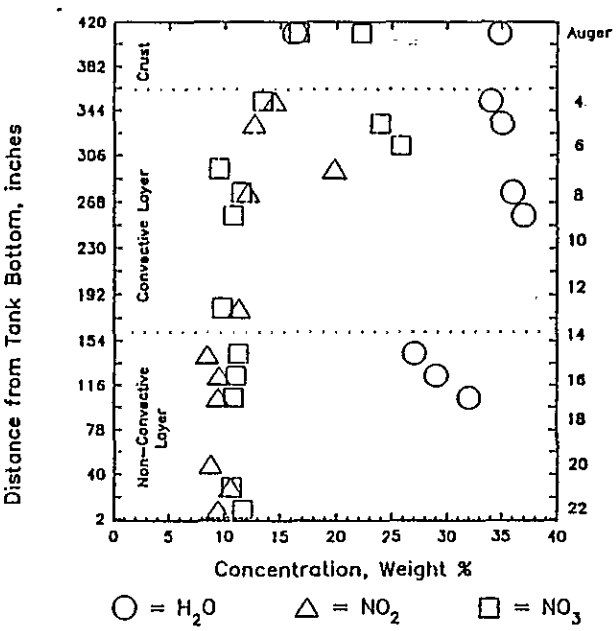
Pressure and Hydrogen Profiles
May 1991 Gas Release Event



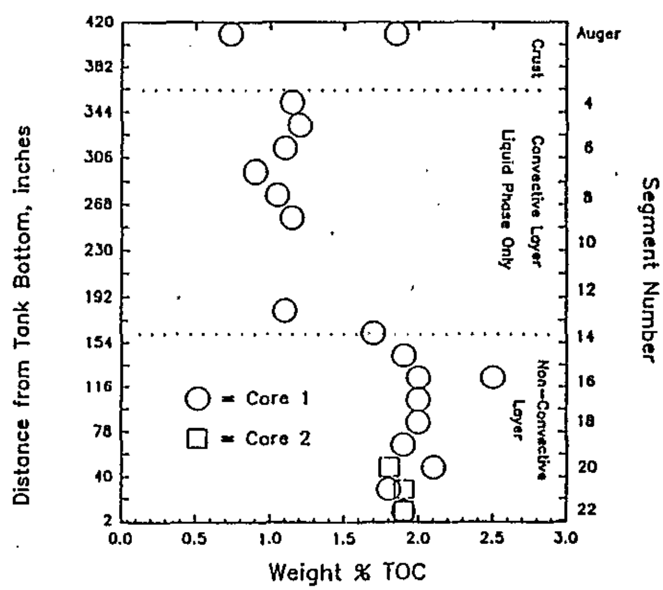
COMPARISON OF WINDOW A AND WINDOW C CRUST SAMPLE RESULTS



Tank 101-SY Window C
Nitrate, Nitrite, and Moisture



Tank 101-SY Window C
Total Organic Carbon



WINDOW C PRELIMINARY CONCLUSIONS

- Crust conditions safer than previously thought:
  - Lower total organic carbon (TOC)
  - Less exothermic activity
  - More moisture
- Boundary between convective and nonconvective layers:
  - Very distinct (obvious physical change)
  - Very abrupt (occurred over a few inches)
- Vertical distribution of key components between layers:
  - Nitrate/nitrite evenly distributed
  - TOC slightly higher in solid phase (nonconvective layer)

FY 1991 HIGHLIGHTS

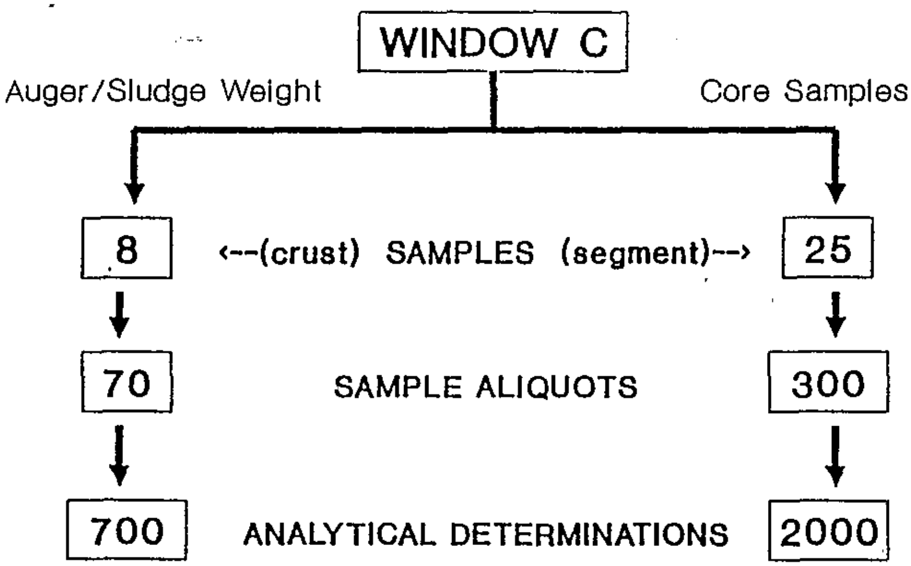
- Obtained the first full depth core sample from Tank 101-SY and completed 75% of the analyses
- Installed a TV camera in Tank 101-SY and obtained the first real time viewing of a gas release event
- Increased the understanding of Tank 101-SY through additional instrumentation and from an increased frequency of data recording
- Laboratory and analytical results show that a "crust burn" is an unlikely event
- Significant progress made on understanding the mechanisms for gas generation
- Completed preliminary evaluation of mitigation and remediation concepts

PERIODIC RELEASE OF GASES

Event Date	Number of Days Since Last Event	Change in Surface Level (Inches)	Peak Pressure (Inches Water Gauge)	Peak H_2 Concentration (Percent)[2]
January 1990	109	-7.7	-----	-----
April 19, 1990	110	-8.3	+0.1	3.5
August 5, 1990	109	-5.2	-1.96	1.2
October 24, 1990	80	-10.3	+2.3	4.7
February 13, 1991	110	-5.0	-2.0	0.04
May 16, 1991	92	-5.0	+0.25	0.5
August 26-29, 1991		<5.0[1]	-3.1	0.1

Average Gas composition: 38% H_2, 32% N_2O, 30% N_2

(1) Radar gauge
(2) Measured in the exhaust header



Plus standards, spikes, and blanks

Changes to this Report:

1. Summary

Table 2 (Tanks Containing >1000 Gram Mole of Ferrocyanide) has been updated to include the revised estimated heat loads for 104-BY.

Table 4 (Single-Shell Tanks Containing Concentrations of Organic Salts >10 Weight % TOC) has been changed to >3% Weight TOC. The 10% refers to the acetate equivalency and not to total organic carbon.

Figure 1 (Single-Shell Tanks Interim Stabilization by Fiscal Year) has been added.

2. Appendix C (Monthly Summary, Tank Use Summary, Inventory Summary by Tank Farm and Inventory and Status by Tank)

Figure C-5 (Inventory and Status by Tank for Single-Shell Tanks) has been revised to include the changes in Drainable Interstitial Liquid, Drainable Liquid Remaining, and Pumpable Liquid Remaining. These values were recalculated to document the predicted jet pump durations for 39 tanks not yet interim stabilized and 8 tanks which may required possible restabilization. Reference Letter 9152682 R3, R. E. Raymond to R. E. Gerton, DOE-RL, "Jet Pump Duration to Interim Stabilize Remaining Single-Shell Tanks," dated November 11, 1991.

3. Appendix D (Performance Summary)

Footnote (12) has been updated to indicate the status for the startup of the 242-A Evaporator-Crystallizer.

4. Appendix G (Catch Tanks and Other Special Surveillance Facilities)

Tables 1 and 3 (Catch Tanks and Other Special Surveillance Facilities) have been updated to reflect the deactivation of S-302-A Catch Tank and the replacement installation and operation of S-304 Catch Tank and Sump.

5. Appendix H (Leak Volume Estimates)

Footnote (4) indicates the next tanks to be reviewed for reevaluation of leak volume estimates.

9 2 1 2 6 4 1 1 3 0 0

TABLE 1. WATCH LIST TANKS

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, " Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). Tables 2 through 5 give more information on these tanks.

October 1991

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

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

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

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

The temperatures in the table are the highest field readings reported. An engineering evaluation is being made to determine the condition of the individual thermocouples.

Tank No.	Highest Temperature Reading this Month (F.)	Date	Probe (4) Position	FeCN(1) (x1000 gm mole)	Estimated Heat Load (2) (Btu/hr)	Estimated Heat Load (2) (kW)	Assumed Leak Date	Interim Stabilized Date
102-BX	71	10/05/91	TC#11	0-3	<10000	<2.93	1971	11/78
106-BX	69	10/27/91	TC#1	0-1	<10000	<2.93	Sound	N/A
110-BX	69	10/27/91	TC#12	0-1	<10000	<2.93	1976	8/85
111-BX	72	10/27/91	TC#12	0-1	<10000	<2.93	1984	N/A
101-BY	74	10/05/91	TC#1	0-1	8200	2.40	Sound	5/84
103-BY	81	10/19/91	LOW	0-1	8600	2.52	1973	N/A
104-BY	130	10/27/91	TC#2	100-200	5500-8000	1.61-2.35	Sound	1/85
105-BY	114	10/27/91	TC#1	70-100	37700	11.04	1984	N/A
106-BY	132	10/05/91	TC#1	30	12200	3.58	1984	N/A
107-BY	86	10/12/91	TC#11	30-80	14500	4.25	1984	7/79
108-BY	100	10/27/91	TC#2	30-70	23000	6.74	1972	2/85
110-BY	120	10/19/91	TC#1	50-90	25200	7.39	Sound	1/85
111-BY	85	10/19/91	LOW	0-3	34200	10.02	Sound	1/85
112-BY	81	10/12/91	LOW	2-3	<10000	<2.93	Sound	5/85
108-C	78	10/26/91	TC#1	9-20	<10000	<2.93	Sound	3/84
109-C	81	10/26/91	TC#1	30-50	<10000	<2.93	Sound	11/83
111-C	81	10/28/91	TC#3	10-30	<10000	<2.93	1968	3/84
112-C	87	10/28/91	TC#1	50-70	<10000	<2.93	Sound	9/90
101-T	80	10/24/91	TC#7	0-10	<10000	<2.93	Sound	N/A
107-T (5)	75	10/24/91	TC#11	0-5	<10000	<2.93	1984	N/A
118-TX (3)	77	10/31/91	TC#1	0-3	4900	1.44	Sound	4/83
101-TY	73	10/24/91	TC#7	0-30	<10000	<2.93	1973	8/83
103-TY	70	10/26/91	LOW	0-30	<10000	<2.93	1973	2/83
104-TY	71	10/24/91	TC#1	0-20	<10000	<2.93	1981	1/83
24 Tanks		Legend: TC - Thermocouple Tree; 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 2)

FOOTNOTES:

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

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

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

(4) In most tanks, TC#1 is located approximately 4 in. above the bottom of the tank, TC#2 is located 24 in. above TC#1, and the remaining TCs are 24 in. above each previous TC.
Temperature probes inserted in LOWs are approximately 12 in. from the bottom of the tank, and have one reading only.

Note: Engineering evaluations are being conducted concerning operational condition of individual thermocouples

N/A = Not Applicable (not yet interim stabilized)

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

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

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

Tank No.	Highest Temperature Reading this Month (F.)	Date	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
101-A	156	10/19/91	Weekly	SOUND	N/A
101-AX	139	10/19/91	Weekly	SOUND	N/A
103-AX	120	10/13/91	Weekly	SOUND	8/87
102-S (3)	110	10/26/91	Weekly	SOUND	N/A
111-S	95	10/26/91	Weekly	SOUND	N/A
112-S	88	10/31/91	Weekly	SOUND	N/A
101-SX	142	10/26/91	Weekly	SOUND	N/A
102-SX	157	10/26/91	Weekly	SOUND	N/A
103-SX	182	10/26/91	Weekly	SOUND	N/A
104-SX	177	10/11/91	Weekly	1988	N/A
105-SX	188	10/26/91	Weekly	SOUND	N/A
106-SX (3)	109	10/26/91	Weekly	SOUND	N/A
109-SX (2)	153	10/31/91	Weekly	1965	5/81
110-T	72	10/17/91	Weekly	SOUND	N/A
103-U	91	10/20/91	Weekly	SOUND	N/A
105-U	95	10/13/91	Weekly	SOUND	N/A
108-U	88	10/20/91	Weekly	SOUND	N/A
109-U	86	10/20/91	Weekly	SOUND	N/A
103-AN (1)	114	10/28/91	Weekly	SOUND	N/A
104-AN (1)	120	10/28/91	Weekly	SOUND	N/A
105-AN (1)	110	10/28/91	Weekly	SOUND	N/A
101-SY (1)	134	10/25/91	Daily	SOUND	N/A
103-SY (1)	121	10/21/91	Weekly	SOUND	N/A
23 Tanks					

Note: All readings are taken by Thermocouple Tree
(1) Double-shell tanks
(2) This tank has the potential for flammable gas accumulation only because other SX tanks vent through it
(3) These tanks also contain potentially high concentrations of organic salts

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

These tanks have organic chemicals which are potentially flammable and mixtures of organic materials mixed with nitrate and nitrate salts can deflagrate. They are listed here because of their "potential for release of high level waste because of uncontrolled increases in the temperature or pressure." Tanks containing organic salts are monitored weekly.

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

Tank No.	Highest Temperature Reading this month (F.)	Date	Assumed Leaked Date	Interim Stabilized Date
103-B	68	10/27/91	1978	2/85
103-C (3)	127	10/26/91	SOUND	N/A
102-S (1)	110	10/26/91	SOUND	N/A
106-SX (1)	109	10/26/91	SOUND	N/A
105-TX	102	10/24/91	1977	9/83
118-TX (2)	77	10/31/91	SOUND	4/83
106-U	87	10/09/91	SOUND	N/A
107-U	88	10/09/91	SOUND	N/A
8 Tanks				

Note: All readings are taken by Thermocouple Tree
(1) These tanks also have the potential for hydrogen or flammable gas accumulation
(2) This tank also contains ferrocyanide
(3) This tank was added due to the presence of a separable organic layer found on the surface

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

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

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

Tank No.	Highest Temp. Reading this Month (F.)	Date	Probe Position	Monitoring Frequency	Estimated Heat Load (1) (Btu/hr)	Estimated Heat Load (1) (kW)	Assumed Leaked Date	Interim Stabilized Date
104-A	190	10/13/91	R	Weekly	50000	14.65	1975	9/78
105-A*	136	10/13/91	R	Weekly	50000	14.65	1963	7/79
105-C (2)	100	10/12/91	TC	Monthly	42000	11.72	SOUND	N/A
106-C (2)(3)	168	10/04/91	TC	Weekly	150000	43.96	SOUND	N/A
107-SX	172	10/07/91	TC	Monthly	42000	11.72	1964	10/79
108-SX	201	10/07/91	TC	Monthly	45000	13.19	1962	8/79
109-SX (3)	153	10/31/91	TC	Weekly	50000	14.65	1965	5/81
110-SX	177	10/07/91	TC	Monthly	42000	11.72	1976	8/79
111-SX	193	10/07/91	TC	Monthly	44000	12.90	1974	7/79
112-SX	162	10/07/91	TC	Monthly	43000	12.60	1969	7/79
114-SX	190	10/07/91	TC	Monthly	58000	17.00	1972	7/79
11 Tanks								
105-A Laterals	220	10/17/91		Weekly				

Legend: Probe Position
TC=Thermocouple Tree
R=Riser

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

(1) High heat loads as of 1988, evaluation completed April 20, 1989 (1 kW = 3412 Btu/hr). The predominant heat load for these tanks is from CS 137 (half life of 30 yr) and SR 90 (half life of 28.1 yr).

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

(3) Watch List Tanks: 106-C, and 109-SX which has the potential for flammable gas accumulation because other SX tanks vent through it.

* 105-A exhauster out-of-service during October. Work order issued, awaiting parts. Temperatures in 105-A and 105-A laterals increased <5 degrees F. during October.

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

October 1991

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE

Complexant Concentrate (102-AN, 107-AN, 101-AY, 101-SY, 103-SY)	4.94 Mgal
Concentrate Phosphate (106-AN)	1.02 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	5.09 Mgal
Neutralized Current Acid Waste (101-AZ, 102-AZ)	1.49 Mgal
Dilute Waste (1) (101-AN, 101-AP, 103-AP, 106-AP, 107-AP, 108-AP, 102-AW, 103-AW, 104-AW, 105-AW, 106-AW, 101-AY, 102-AY, 102-AZ, 102-SY)	10.66 Mgal
NCRW and PFP Settled Solids (103-AW, 105-AW, 102-SY)	1.01 Mgal
	24.21 Mgal

SPACE DESIGNATED FOR SPECIFIC USE

Spare Tanks (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Segregated Tank Space (102-AN, 107-AN, 103-AW, 101-AY)	0.68 Mgal
Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY)	0.66 Mgal
Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	1.81 Mgal
Miscellaneous Head Space	0.16 Mgal
	5.59 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	- 24.21 Mgal
Space Designated for Specific Use	- 5.59 Mgal
Remaining Unallocated Space	1.48 Mgal

(1) Easily reduced in volume by Evaporator/LERF

(2) Reduced by Saltwell Liquid pumping

Note: Change since last month: Dilute Waste increased 54 Kgal

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

October 1991

Tank No.	Category	Date of Last Automatic FIC Reading	Reading Status	Corrective Action	Monitoring Frequency
108-SX	IS	07/07/91	No reading taken since 7/7/91	Work Pkg 2W-91-01412-W	Quarterly
107-T	-	04/14/91	No reading taken since 4/14/91	Work Pkg 2W-91-807	Weekly
112-T	IS	03/16/90	No reading taken since 3/16/90	Work Pkg generic repair T, TX, TY Farms FICs, 2W-91-00071	Quarterly
105-U	-	06/09/91	No reading taken since 6/09/91	Work Pkg pending	Weekly
103-AX	IS	07/18/90	Taking manual FIC readings		Monthly
102-B	IS	07/04/91	Taking manual FIC readings		Daily
106-B	IS	07/04/91	Taking manual FIC readings		Quarterly
112-B	IS	07/04/91	Taking manual FIC readings		Quarterly
103-BX	IS	07/04/91	Taking manual FIC readings		Quarterly
104-BX	IS	02/25/91	Taking manual FIC readings		Weekly
107-BX	IS	07/04/91	Taking manual FIC readings		Weekly
109-BX	IS	07/04/91	Taking manual FIC readings		Monthly
112-BX	IS	07/04/91	Taking manual FIC readings		Weekly
109-BY	-	07/04/91	Taking manual FIC readings		Weekly
111-S	-	10/28/91	Taking manual FIC readings		Weekly
106-SX	-	09/30/91	Taking manual FIC readings		Weekly
101-T	-	10/14/91	Taking manual FIC readings		Weekly
102-T	IS	10/29/91	Taking manual FIC readings		Quarterly
103-T	IS	10/28/91	Taking manual FIC readings		Quarterly
111-T	-	10/28/91	Taking manual FIC readings		Quarterly
107-TX	IS	10/04/91	Taking manual FIC readings		Quarterly
102-AW	DST	06/13/91	Taking manual tape readings		Daily
103-AW	DST	08/23/90	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
101-SY	DST	08/23/91	Taking manual tape readings		Daily
102-SY	DST	10/28/91	Taking manual tape readings		Daily
<u>Catch Tanks</u>					
A-302-A		04/16/91	Taking manual FIC reading		Daily
S-302		07/02/90	Taking manual FIC reading		Daily
311-ER		08/07/91	Taking manual FIC reading		Daily
TX-302-C		08/07/91	Taking manual FIC reading		Daily

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

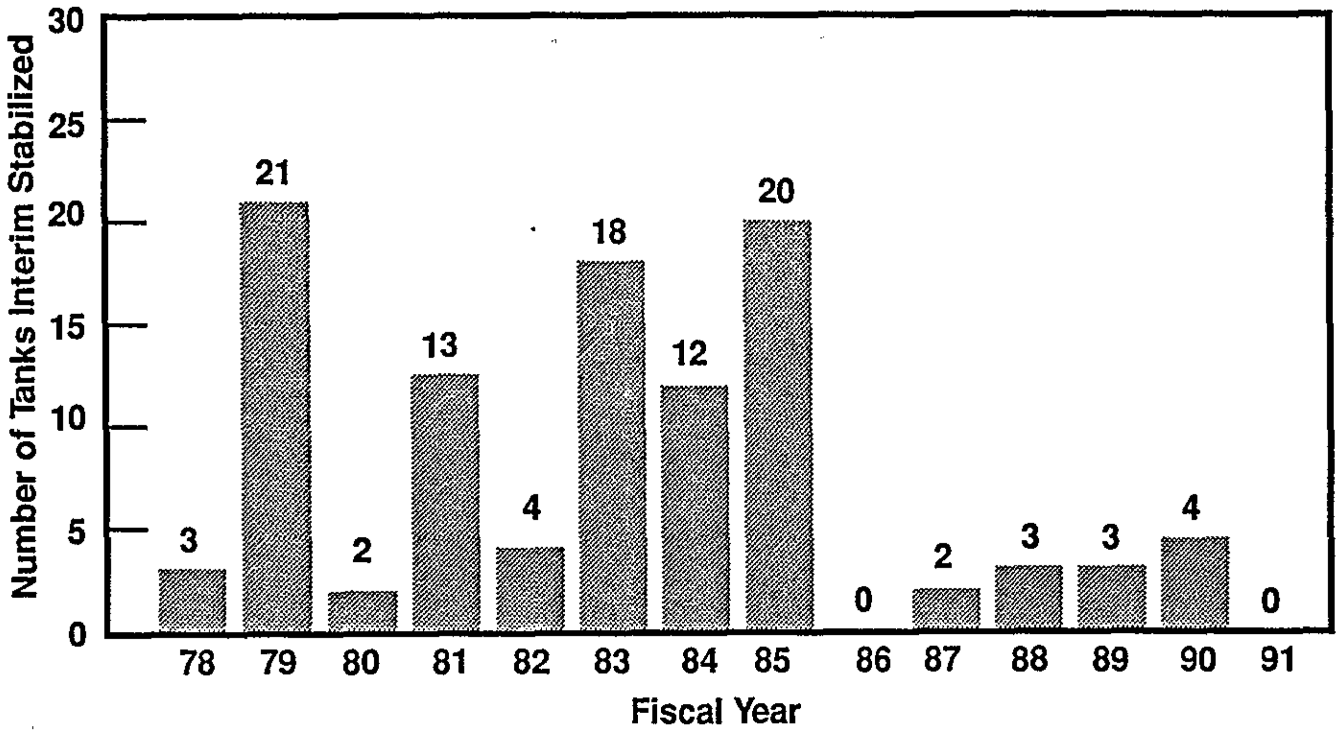


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Figure 1. Single-Shell Tanks Interim Stabilized by Fiscal Year

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APPENDIX A

TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS

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TANK AND EQUIPMENT CODE/STATUS DEFINITIONS
October 1991

1. TANK STATUS CODES

WASTE TYPE

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

TANK USE (DOUBLE-SHELL TANKS ONLY)

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

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

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

3. DEFINITIONS

WASTE TYPES

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

	iminodiacetate (IDA) being the major complexants used. Main sources of DC waste are saltwell liquid inventory.
Dilute Non-Complexed Waste (DN)	Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernatant).
Double-Shell Slurry (DSS)	Waste evaporated almost to its sodium aluminate saturation boundary or 6.5 M hydroxide in the evaporator. For reporting purposes, DSS is considered a solid.
Double-Shell Slurry Feed (DSSF)	Waste evaporated just before reaching the sodium aluminate saturation boundary or 6.5 M hydroxide in the evaporator. This form is not as concentrated as DSS.
Non-complexed (NCPLX)	General waste term applied to all Hanford Site liquors not identified as complexed.
PUREX Decladding (PD/PN)	PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. Classified as transuranic (TRU) waste.
PFP TRU Solids (PT)	TRU solids from West Area operations.
Drainable Interstitial Liquid (DIL)	Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity.
Supernatant	The liquid above the solids in waste storage tanks.

WASTE STATUS

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

STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)	A tank which contains less than 50,000 gal of drainable interstitial liquid and less than 5,000 gal of supernatant liquid.

ISOLATION (Single-Shell Tanks only)

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

TANK INTEGRITY

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

TANK INVESTIGATION

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

SURVEILLANCE INSTRUMENTATION

Drywells	Drywells are vertical carbon steel casings positioned radially around SSTs. Periodic monitoring is done by gamma radiation or neutron sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage. These wells range between 50 and 250 ft in depth, and are monitored between the range of 50 to 150 ft. The wells are sealed when not in use.
Laterals	Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells are monitored by radiation detection probes. Laterals are 4-in.

inside diameter steel pipes located 8 to 10 ft below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms.

Surface Levels — The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Computer Automated Surveillance System (CASS).

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

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

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

Thermocouple (TC) — A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete. These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, there may be one or more thermocouple trees installed directly in a tank. A single thermocouple may be installed in a riser, or lowered down an existing riser or LOW. There are also thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

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

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

COLUMN HEADING

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

Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs may be used to estimate the volume.
Saltcake	Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs may be used to estimate the saltcake volume.
Solids Volume Update	Indicates the latest update of any change in the solids volume.
Solids Update Source - See Footnote	Indicates the source or basis of the latest solids volume update.
Last Photo Date	Date of latest in-tank photographs taken.
Change Since Last Monthly Report	Indicates any change made since the previous month. Explanation for the change follows the Inventory and Status by Tank section.

APPENDIX B

TANK FARM CONFIGURATION, STATUS, AND FACILITY CHARTS

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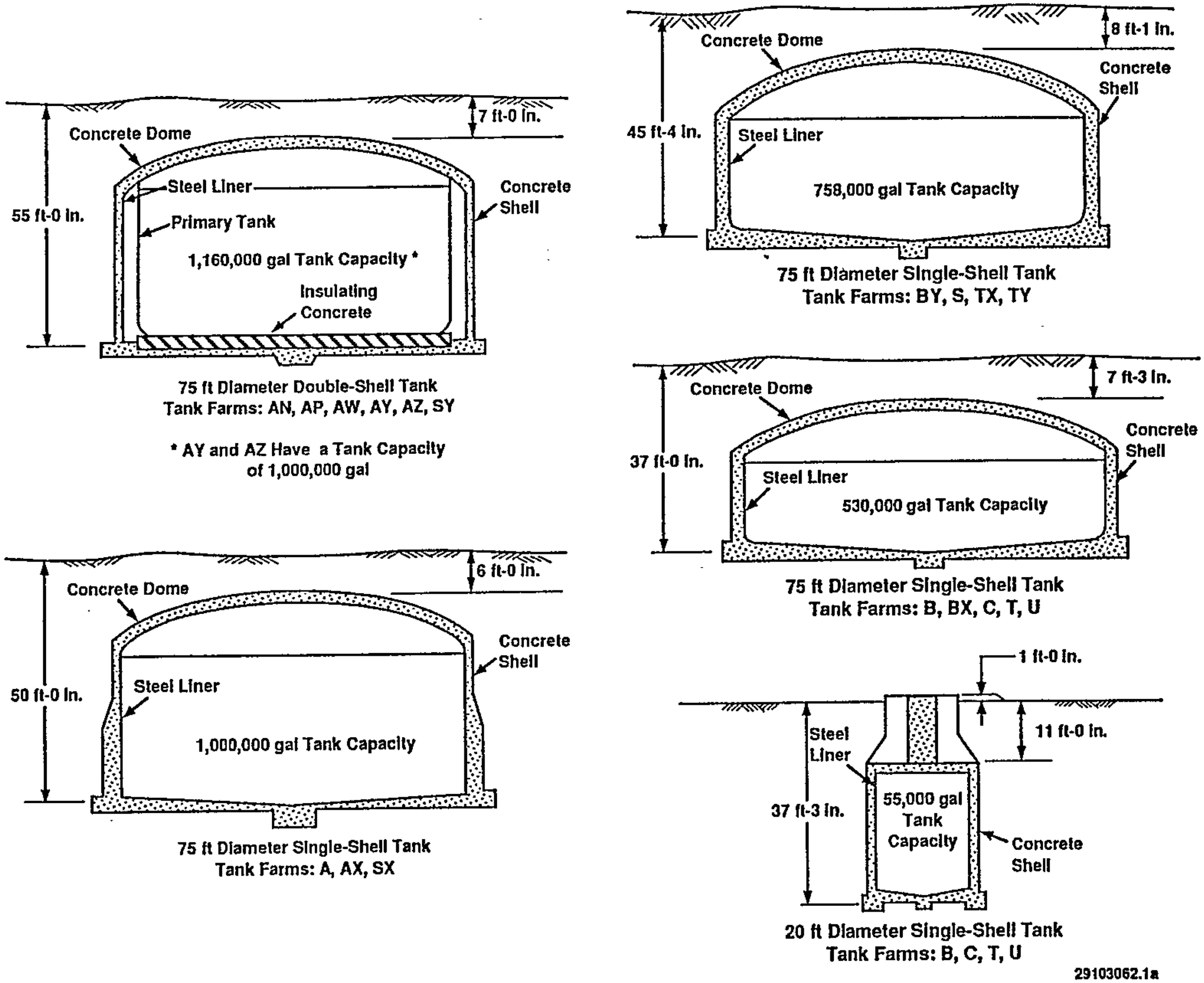

Figure B-1. High-Level Waste Tank Configuration

9 2 1 2 6 4 1 1 3 2 1

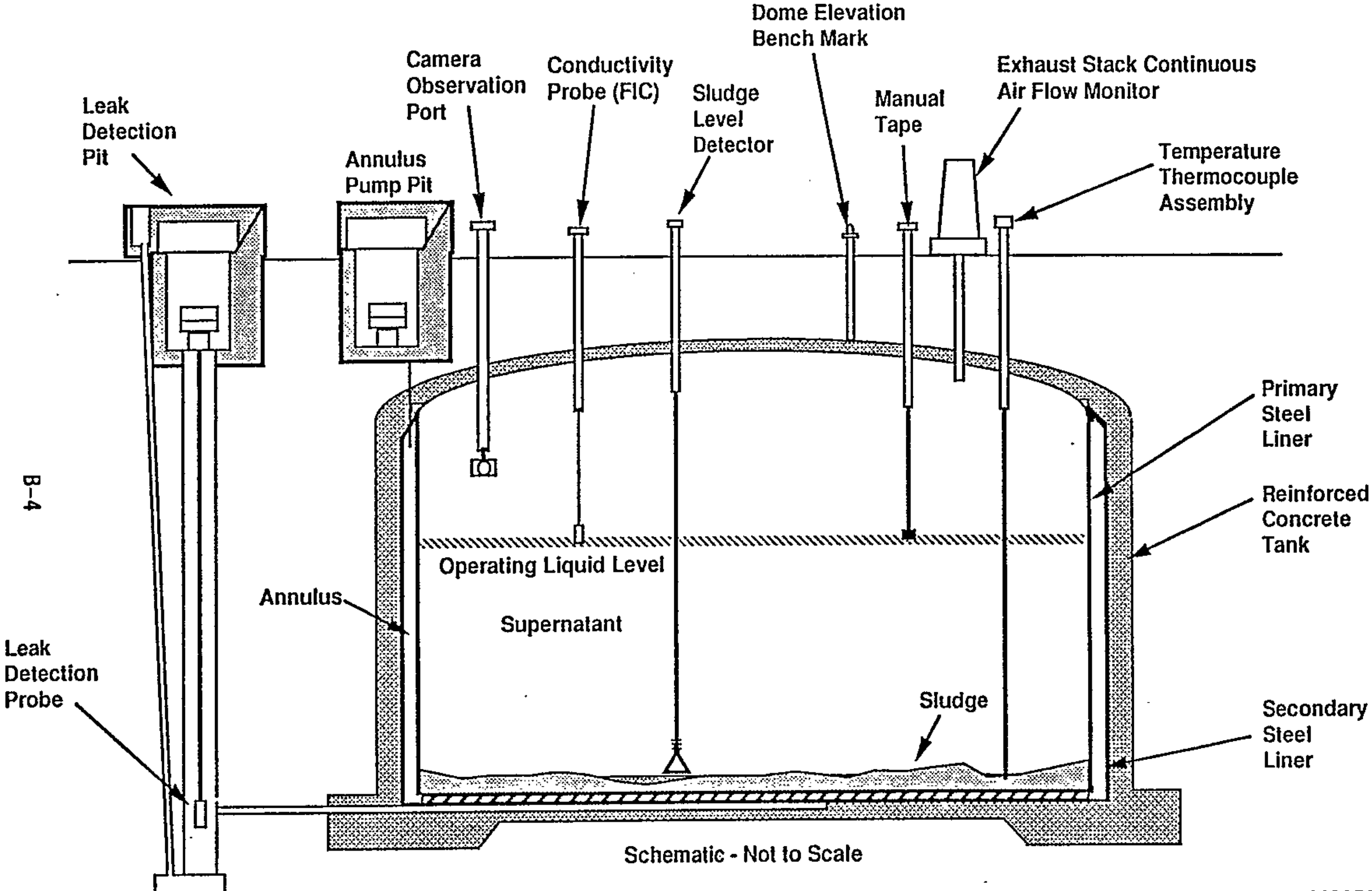

Figure B-2. Double-Shell Tank Instrumentation Configuration

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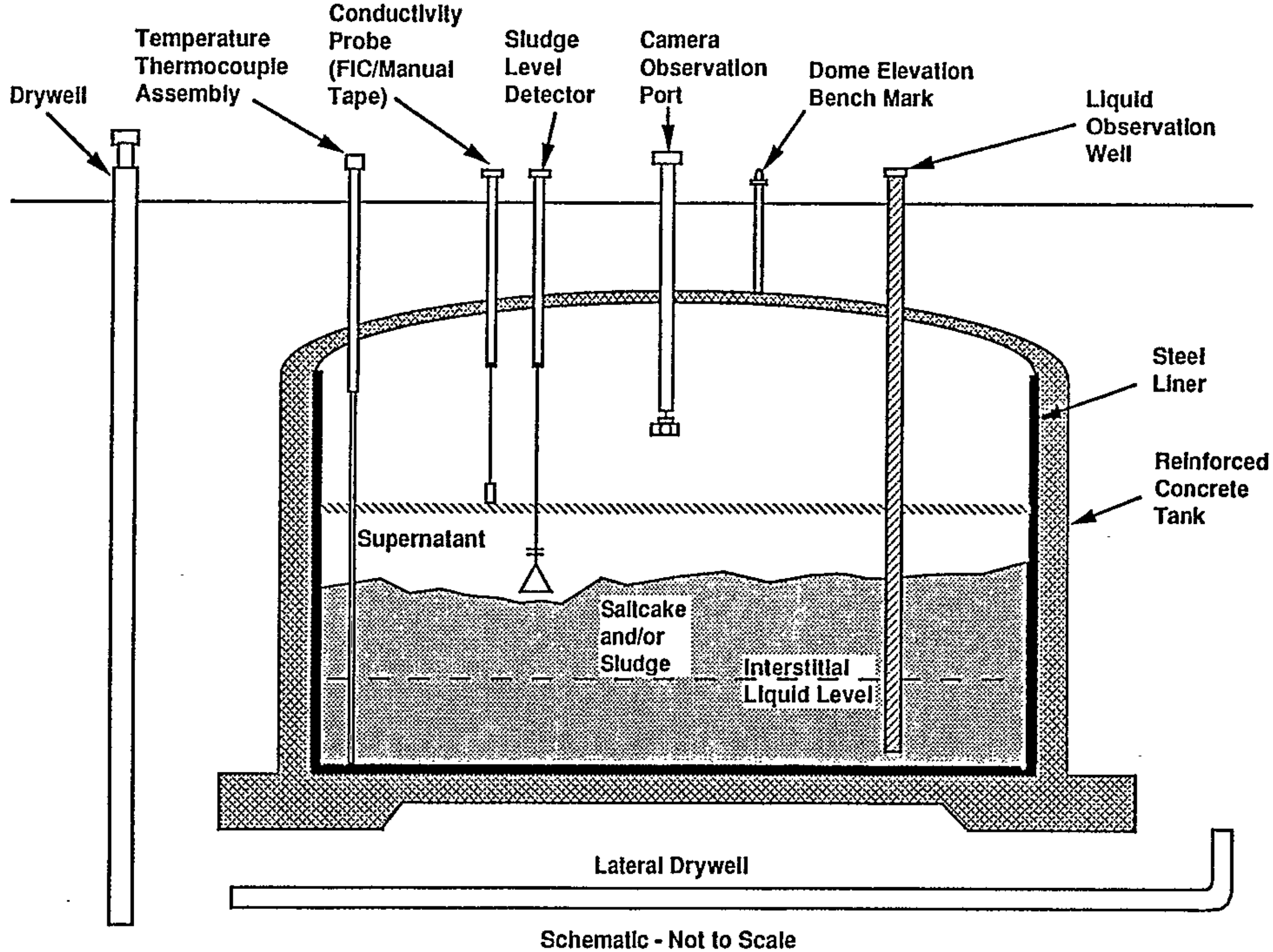

Figure B-3. Single-Shell Tank Instrumentation Configuration

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9 2 1 2 6 4 1 1 3 2 4

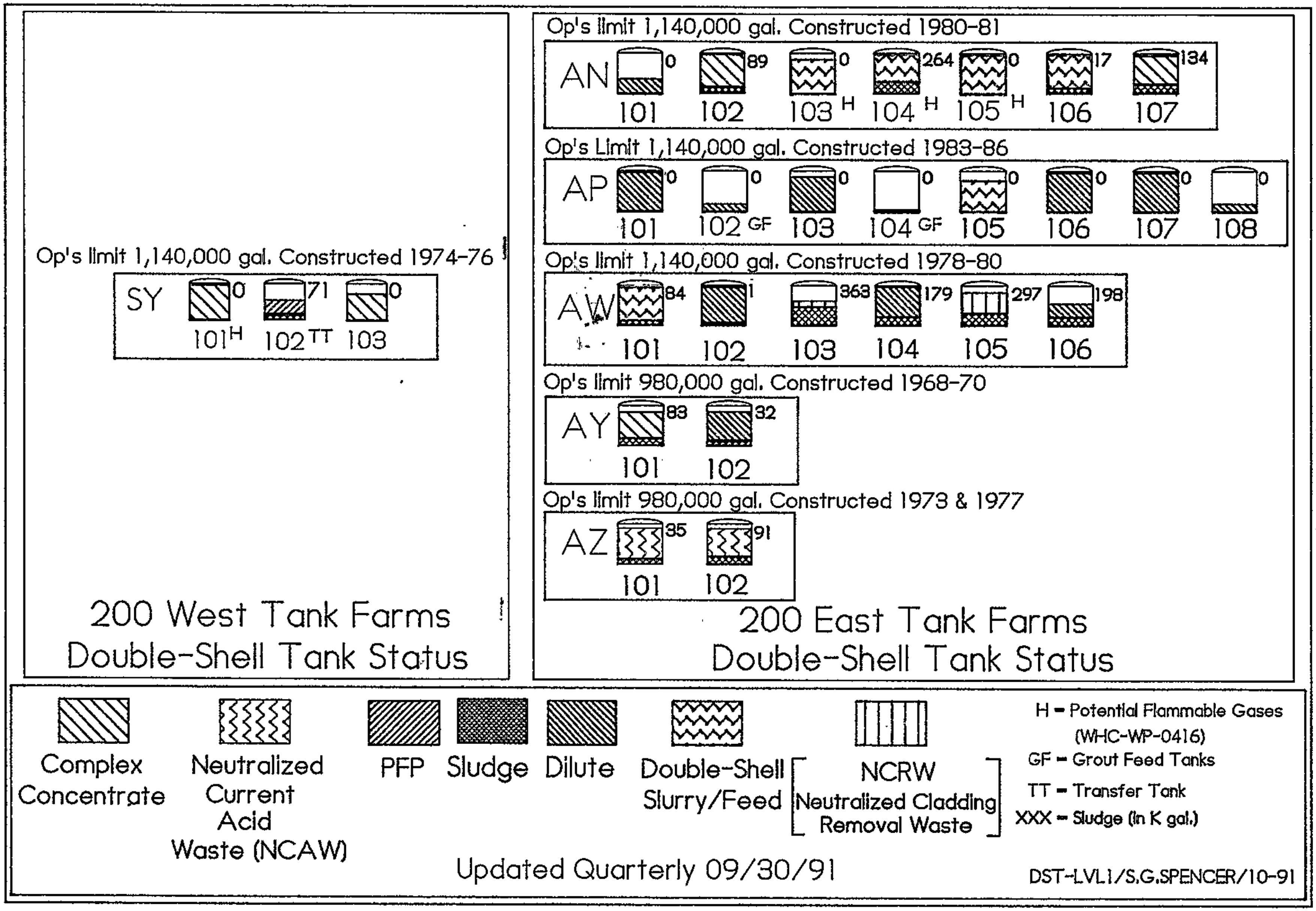

Figure B-4. Double-Shell Tank Status

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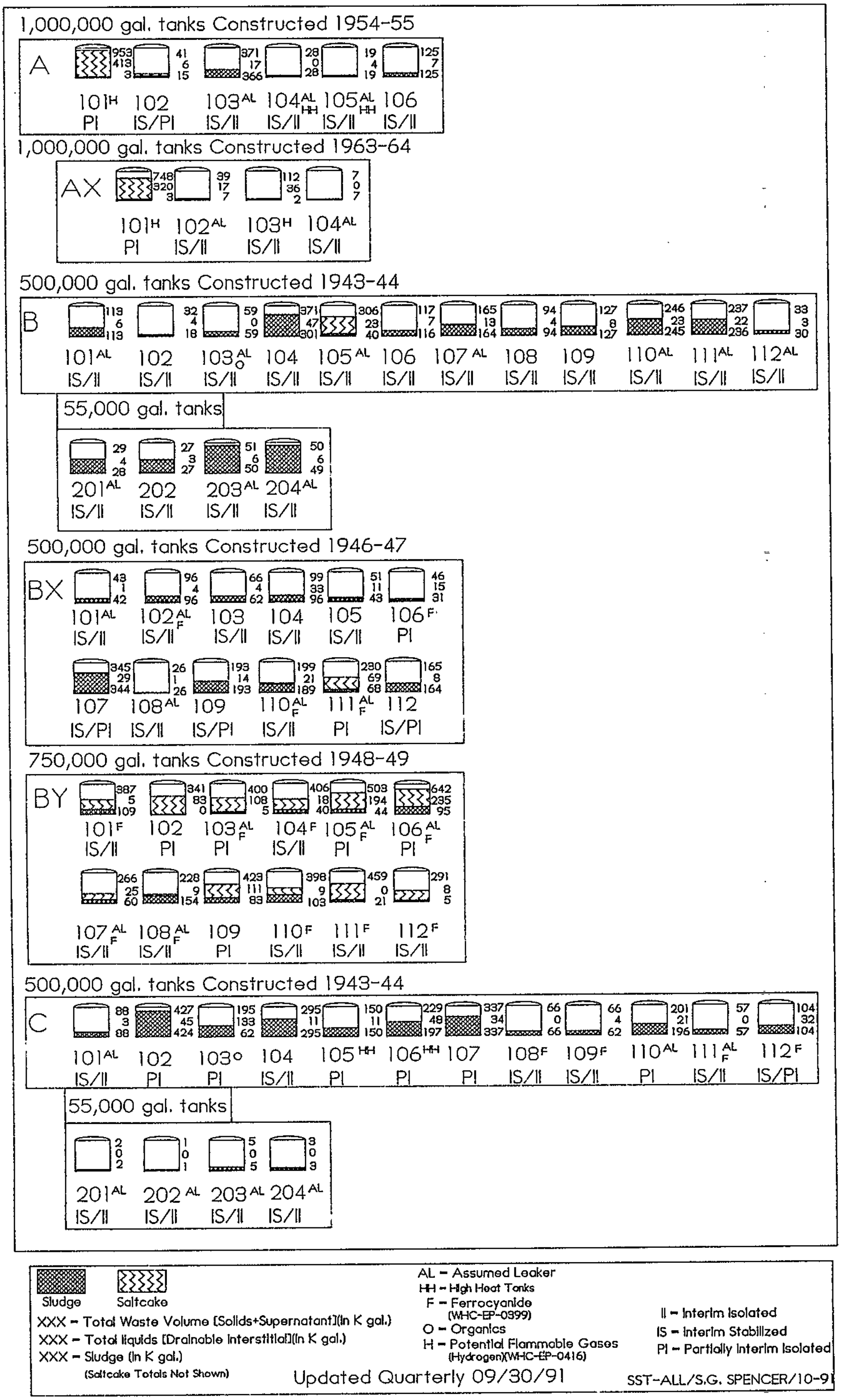

Figure B-5. 200E Single-Shell Tank Status

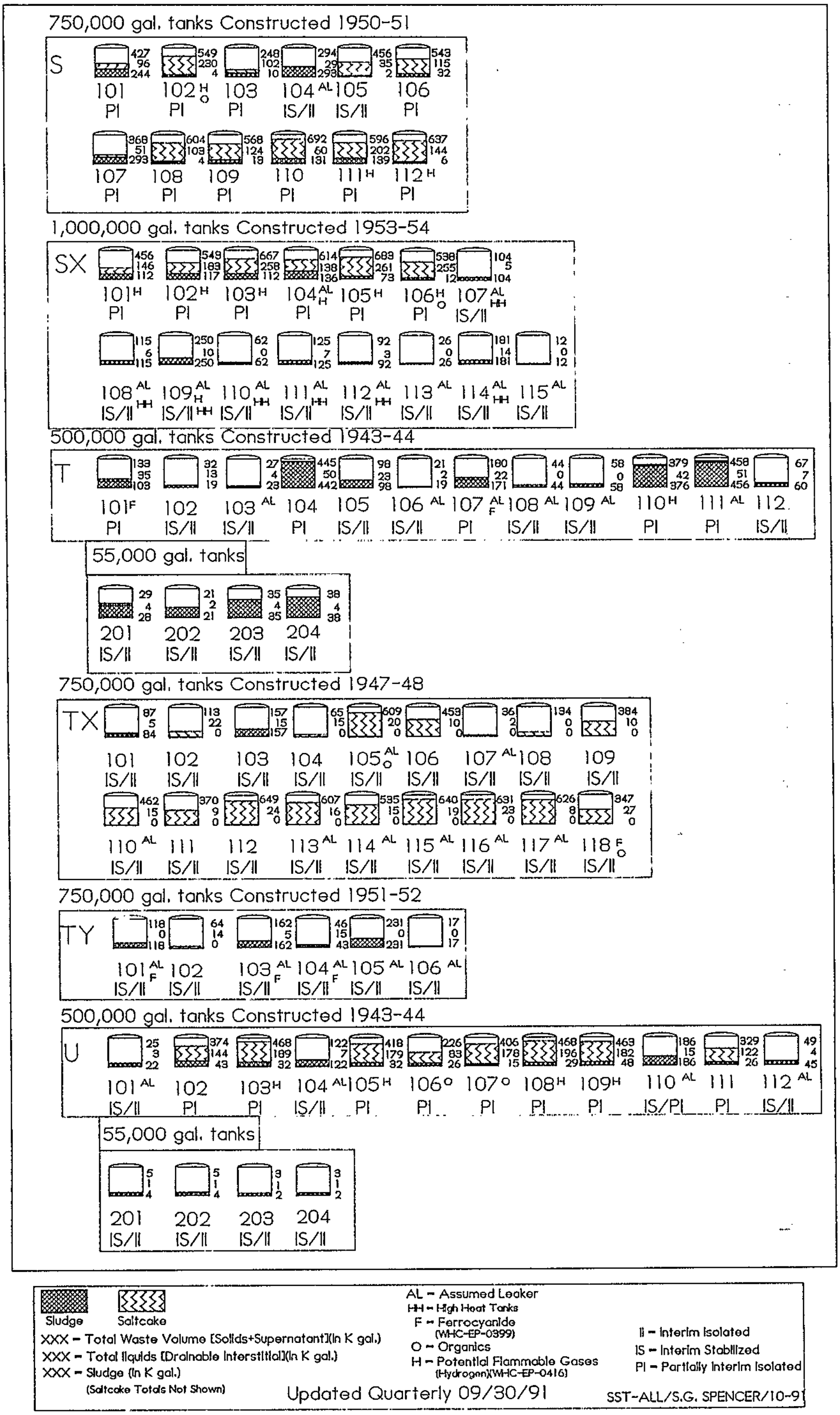

Fig. B-6. 200W Single-Shell Tank Status

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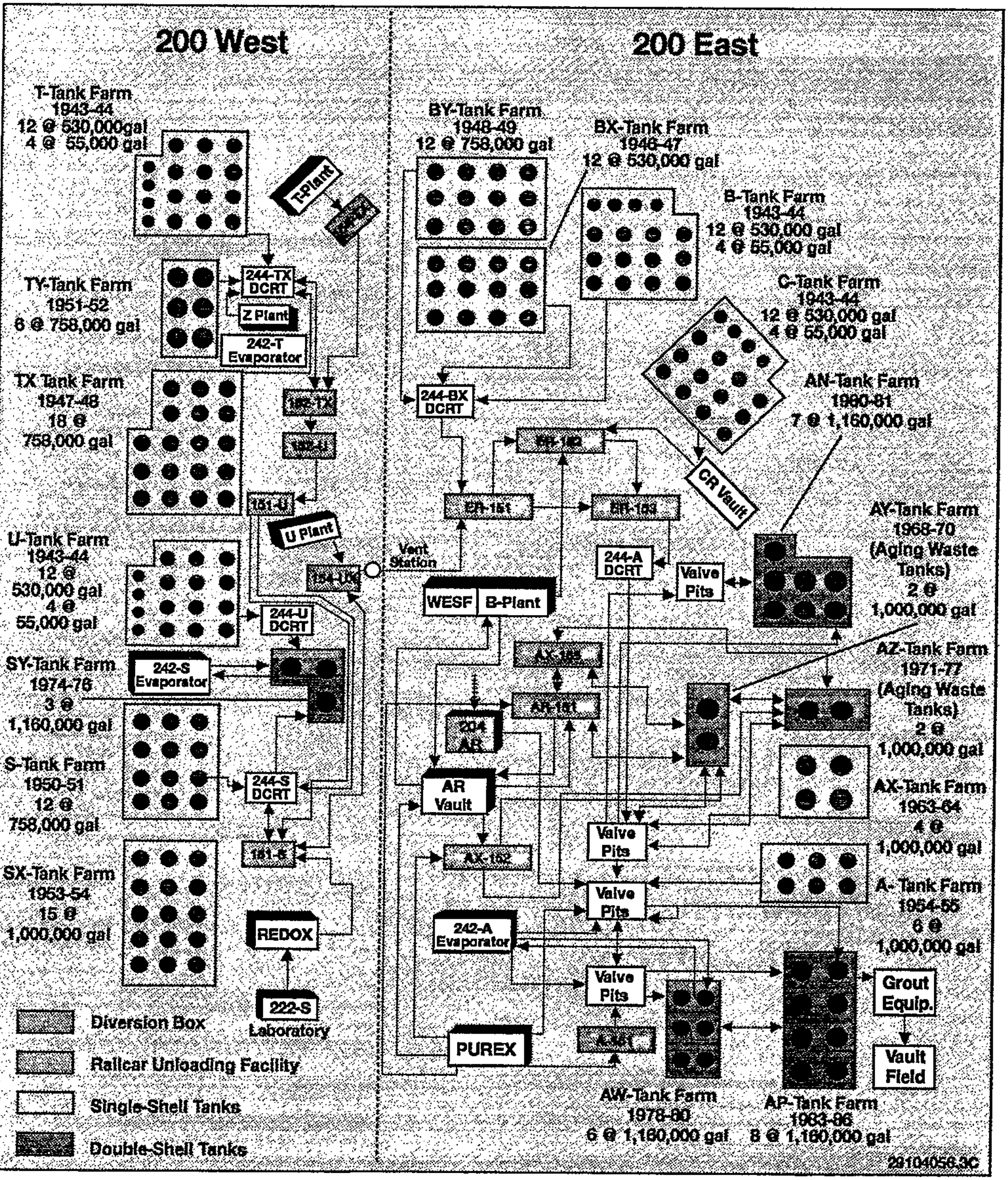

Figure B-7. Tank Farm Facilities – Quick Reference

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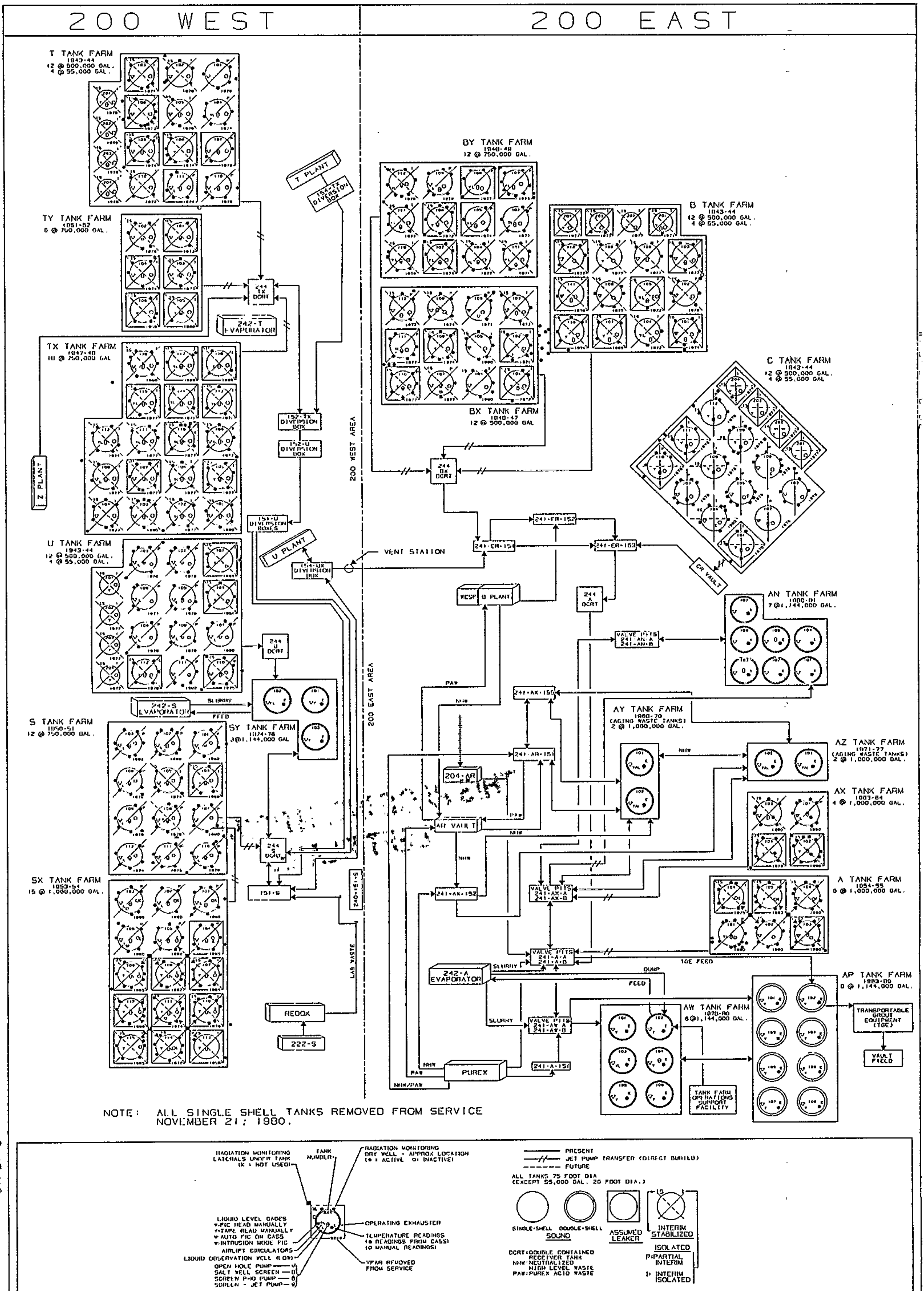

FIGURE B-8. HANFORD TANK FARM FACILITIES, UPDATED QUARTERLY, UPDATED 9/30/91.

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APPENDIX C

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

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9 2 1 2 6 4 1 1 3 3 1

TABLE C-1. MONTHLY SUMMARY

TANK STATUS

October 1991

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

WASTE VOLUMES (Kgallons)

		200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AGING	Aging waste	1796	0	1796	0	1796	1796
CC	Complexant concentrate waste	1952	169	2121	3	2118	2121
CP	Concentrated phosphate waste	1001	0	1001	0	1001	1001
DC	Dilute complexed waste	812	1	813	1	812	813
DN	Dilute non-complexed waste	8410	0	8410	0	8410	8410
DN/PD	Dilute non-complex/PUREX TRU solids	890	0	890	0	890	890
DN/PT	Dilute non-complex/PFP TRU solids	0	567	567	0	567	567
DSSF	Double-shell slurry feed	3821	48	3869	56	3813	3869
NCPLX	Non-complexed waste	242	310	552	552	0	552
TOTAL SUPERNATANT		18924	1095	20019	612	19407	20019
SOLIDS							
Double-shell slurry		937	1134	2071	0	2071	2071
Sludge		8261	6215	14476	12538	1938	14476
Saltcake		6577	17654	24231	23471	760	24231
TOTAL SOLIDS		15775	25003	40778	36009	4769	40778
TOTAL WASTE		34699	26098	60797	36621	24176	60797
AVAILABLE SPACE IN TANKS		6194	915	7109	0	7109	7109
DRAINABLE INTERSTITIAL		2338	4499	6837	6401	436	6837
DRAINABLE LIQUID REMAINING		21262	5625	26887	7044	19843	26887

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

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

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

TABLE C-2. TANK USE SUMMARY

October 1991

TANK FARMS	IN SERVICE	OUT OF SERVICE	SOUND	ASSUMED LEAKER	ISOLATED TANKS PARTIAL	ISOLATED TANKS INTERIM	INTERIM STABILIZED TANKS
EAST							
A	0	6	3	3	2	4	5
AN	7 (2)	0	7	0	0	0	0
AP	8	0	8	0	0	0	0
AW	6	0	6	0	0	0	0
AX	0	4	2	2	0	0	0
AY	2	0	2	0	1	3	3
AZ	2	0	2	0	0	0	0
B	0	16	6	10	0	0	0
BX	0	12	7	5	0	16	16 (1)
BY	0	12	7	5	6	6	10 (1)
C	0	16	9	7	5	7	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)

October 1991

TANK FARM	TOTAL WASTE	AVAIL SPACE	*SUPERNATANT LIQUID VOLUMES* AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	*SOLIDS VOLUME* DSS	SLUDGE	SALT CAKE	TOTAL
EAST																
A	1536	0	0	0	0	0	0	0	0	8	0	8	0	556	972	1528
AN	6885	1095	0	1949	1001	0	548	0	0	1946	0	5444	937	504	0	1441
AP	5622	3498	0	0	0	0	4796	0	0	826	0	5622	0	0	0	0
AW	5363	1477	0	0	0	0	2114	890	0	1041	0	4045	0	1122	196	1318
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1878	86	0	0	0	812	952	0	0	0	0	1764	0	115	0	115
AZ	1922	38	1796	0	0	0	0	0	0	0	0	1796	0	126	0	126
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1559	0	0	0	0	0	0	0	0	0	50	50	0	1354	155	1509
BY	4744	0	0	0	0	0	0	0	0	0	0	0	0	719	4025	4744
C	2226	0	0	0	0	0	0	0	0	0	177	177	0	2049	0	2049
Total	34698	6194	1796	1952	1001	812	8410	890	0	3821	242	18924	937	8261	6577	15775
WEST																
S	5982	0	0	0	0	0	0	0	0	17	29	46	0	1171	4765	5936
SX	4453	0	0	0	0	1	0	0	0	0	62	63	0	1532	2858	4390
SY	2505	915	0	169	0	0	0	0	567	0	0	736	1134	71	564	1769
T	2065	0	0	0	0	0	0	0	0	0	74	74	0	1991	0	1991
TX	6905	0	0	0	0	0	0	0	0	0	5	5	0	241	6659	6900
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	26098	915	0	169	0	1	0	0	567	48	310	1095	1134	6215	17654	25003
TOTAL	60796	7109	1796	2121	1001	813	8410	890	567	3869	552	20019	2071	14476	24231	40778

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

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

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
								++++++ AN FARM STATUS ++++++												
101AN	DN	SOUND	DRCVR	199.4	548	592	548	0	0.0	0.0	548	548	0	0	0	FM	S	08/22/89	0/ 0/ 0	
102AN	CC	SOUND	CWHT	398.2	1095	45	1006	3	0.0	0.0	1009	1006	0	89	0	FM	S	08/22/89	0/ 0/ 0	
103AN	DSS	SOUND	CWHT	345.7	951	189	14	0	0.0	0.0	14	14	937	0	0	FM	S	08/22/89	10/29/87	
104AN	DSSF	SOUND	CWHT	386.5	1063	77	799	25	0.0	0.0	824	802	0	264	0	FM	S	08/22/89	08/19/88	
105AN	DSSF	SOUND	CWHT	412.0	1133	7	1133	0	0.0	0.0	1133	1133	0	0	0	FM	S	10/22/84	01/26/88	
106AN	CP	SOUND	CWHT	370.2	1018	122	1001	0	0.0	0.0	1001	1001	0	17	0	FM	S	08/22/89	0/ 0/ 0	
107AN	CC	SOUND	CWHT	391.8	1077	63	943	9	0.0	0.0	952	943	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6885	1095	5444	37	0.0	0.0	5481	5447	937	504	0					
								++++++ AP FARM STATUS ++++++												
101AP	DN	SOUND	DRCVR	386.4	1063	77	1063	0	0.0	0.0	1063	1063	0	0	0	FM	S	05/01/89	0/ 0/ 0	
102AP	DN	SOUND	GRTFD	48.3	133	1007	133	0	0.0	0.0	133	133	0	0	0	FM	S	07/11/89	0/ 0/ 0	
103AP	DN	SOUND	DRCVR	412.7	1135	5	1135	0	0.0	0.0	1135	1135	0	0	0	FM	S	10/13/88	0/ 0/ 0	
104AP	DN	SOUND	GRTFD	7.4	20	1120	20	0	0.0	0.0	20	20	0	0	0	FM	S	10/13/88	0/ 0/ 0	
105AP	DSSF	SOUND	CWHT	300.2	826	314	826	0	0.0	0.0	826	826	0	0	0	FM	S	02/02/89	0/ 0/ 0	
106AP	DN	SOUND	DRCVR	412.1	1133	7	1133	0	0.0	0.0	1133	1133	0	0	0	FM	S	10/13/88	0/ 0/ 0	
107AP	DN	SOUND	DRCVR	409.8	1127	13	1127	0	0.0	0.0	1127	1127	0	0	0	FM	S	10/13/88	0/ 0/ 0	
108AP	DN	SOUND	DRCVR	67.1	185	955	185	0	0.0	0.0	185	185	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	5622	3498	5622	0	0.0	0.0	5622	5622	0	0	0					

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

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	409.2	1125	15	1041	2	0.0	0.0	1043	1041	0	84	0	FM	S	10/22/84	03/17/88	
102AW	DN	SOUND	EVFD	375.5	1033	107	1032	0	0.0	0.0	1032	1032	0	1	0	FM	S	02/29/84	02/02/83	
103AW	DN/PD	SOUND	DRCVR	235.3	647	493	284	37	0.0	0.0	321	299	0	363	0	FM	S	02/01/89	0/ 0/ 0	
104AW	DN	SOUND	DRCVR	409.6	1126	14	836	49	0.0	0.0	885	863	0	179	111	FM	S	03/05/87	02/02/83	
105AW	DN/PD	SOUND	DRCVR	328.4	903	237	606	29	0.0	0.0	635	613	0	297	0	FM	S	03/05/87	0/ 0/ 0	
106AW	DN	SOUND	SRCVR	192.2	529	611	246	40	0.0	0.0	286	264	0	198	85	FM	S	06/24/89	02/02/83	
6 DOUBLE-SHELL TANKS				TOTALS:	5363	1477	4045	157	0.0	0.0	4202	4112	0	1122	196					
								++++++ AY FARM STATUS ++++++												
101AY	DC	SOUND	DRCVR	325.0	894	86	812	2	0.0	0.0	814	812	0	83	0	FM	S	02/02/87	12/28/82	
102AY	DN	SOUND	DRCVR	357.7	984	0	952	0	0.0	0.0	952	952	0	32	0	FM	S	02/10/88	04/28/81	
2 DOUBLE-SHELL TANKS				TOTALS:	1878	86	1764	2	0.0	0.0	1766	1764	0	115	0					
								++++++ AZ FARM STATUS ++++++												
101AZ	AGING	SOUND	CWHT	353.3	971	9	936	0	0.0	0.0	936	936	0	35	0	FM	S	09/30/90	08/18/83	See
102AZ	AGING	SOUND	DRCVR	345.8	951	29	860	3	0.0	0.0	863	860	0	91	0	FM	S	09/30/90	12/24/84	Footnote
2 DOUBLE-SHELL TANKS				TOTALS:	1922	38	1796	3	0.0	0.0	1799	1796	0	126	0					

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

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
							++++++ SY FARM STATUS ++++++													
101SY	CC	SOUND	CWHT	420.8	1121	19	0	237	0.0	0.0	237	231	561	0	560	FM	S	10/15/84	04/12/89	
102SY	DN/PT	SOUND	DRCVR	232.0	638	502	567	0	0.0	0.0	567	567	0	71	0	FM	S	05/12/87	04/29/81	
103SY	CC	SOUND	CWHT	271.3	746	394	169	0	0.0	0.0	169	169	573	0	4	FM	S	10/22/84	10/01/85	
3 DOUBLE-SHELL TANKS				TOTALS:	2505	915	736	237	0.0	0.0	973	967	1134	71	564					

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

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++ A FARM STATUS ++++++												
101A	DSSF	SOUND	/PI	953	0	413	0.0	0.0	413	390	3	950	P	F	11/21/80		08/21/85	*
102A	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	(1)	07/20/89	
103A	DSSF	ASMD LKR	IS/II	370	4	13	0.0	111.0	17	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	447	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
October 1991

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

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
							++++++ BX FARM STATUS ++++++											
101BX	NCPLX	ASMD LKR	IS/II	43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82		11/24/88	
102BX	NCPLX	ASMD LKR	IS/II	96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82		09/18/85	
103BX	NCPLX	SOUND	IS/II	66	4	0	0.0	0.0	4	0	62	0	P	F	11/29/83		10/31/86	
104BX	NCPLX	SOUND	IS/II	99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	(1)	09/21/89	
105BX	NCPLX	SOUND	IS/II	51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	(1)	10/23/86	
106BX	NCPLX	SOUND	/PI	46	15	0	0.0	0.0	15	15	31	0	MP	PS	04/28/82		05/19/88	
107BX	NCPLX	SOUND	IS/PI	345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	(2)	09/11/90	
108BX	NCPLX	ASMD LKR	IS/II	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	(1)	10/23/86	
109BX	NCPLX	SOUND	IS/PI	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	(2)	09/11/90	
110BX	NCPLX	ASMD LKR	IS/PI	199	1	15	0.0	0.0	16	10	189	9	MP	M	08/22/85	(1)	07/31/85	*
111BX	NCPLX	ASMD LKR	/PI	230	19	50	0.0	0.0	69	46	68	143	M	M	07/26/77		09/18/85	*
112BX	NCPLX	SOUND	IS/PI	165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	(2)	09/11/90	
12 SINGLE-SHELL TANKS			TOTALS:	1559	50	155	0.0	67.8	205	135	1354	155						
							++++++ BY FARM STATUS ++++++											
101BY	NCPLX	SOUND	IS/II	387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84		09/19/89	
102BY	NCPLX	SOUND	/PI	341	0	71	11.8	119.7	71	49	0	341	MP	M	08/30/91	(2)	09/11/87	*
103BY	NCPLX	ASMD LKR	/PI	400	0	160	0.0	78.5	160	137	5	395	MP	M	04/03/90	(2)	09/07/89	*
104BY	NCPLX	SOUND	IS/II	406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82		04/27/83	
105BY	NCPLX	ASMD LKR	/PI	503	0	192	0.0	0.0	192	169	44	459	P	MP	04/28/82		12/02/88	*
106BY	NCPLX	ASMD LKR	/PI	642	0	235	0.0	0.0	235	213	95	547	P	MP	04/28/82		11/04/82	
107BY	NCPLX	ASMD LKR	IS/II	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82		10/15/86	

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
108BY	NCPLX	ASMD LKR	IS/II	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82		10/15/86	
109BY	NCPLX	SOUND	/PI	423	0	111	0.0	68.4	111	89	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	843	11.8	1358.7	843	657	719	4025						
					++++++ C FARM STATUS ++++++													
101C	NCPLX	ASMD LKR	IS/II	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83		11/17/87	
102C	NCPLX	SOUND	/PI	427	3	45	0.0	0.0	48	42	424	0	P	FP	04/28/82		05/18/76	
103C	NCPLX	SOUND	/PI	195	133	0	0.0	0.0	133	133	62	0	F	S	10/22/90	(1)	07/28/87	
104C	CC	SOUND	IS/II	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	(1)	07/25/90	
105C	NCPLX	SOUND	/PI	150	0	11	0.0	0.0	11	4	150	0	F	S	05/31/85		04/01/88	*
106C	NCPLX	SOUND	/PI	229	32	16	0.0	0.0	48	42	197	0	F	PS	04/28/82		04/05/79	
107C	NCPLX	SOUND	/PI	337	0	34	0.0	0.0	34	28	337	0	F	S	07/19/78		00/00/00	
108C	NCPLX	SOUND	IS/II	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	(1)	12/05/74	
109C	NCPLX	SOUND	IS/II	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83		01/30/76	
110C	NCPLX	ASMD LKR	/PI	201	5	16	0.0	0.0	21	15	196	0	P	FMP	05/31/85		08/12/86	
111C	NCPLX	ASMD LKR	IS/II	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82		02/25/70	
112C	NCPLX	SOUND	IS/PI	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	(2)	09/18/90	

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
201C	NCPLX	ASMD LKR	IS/II	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82		12/02/86	
202C	EMPTY	ASMD LKR	IS/II	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79		12/09/86	
203C	NCPLX	ASMD LKR	IS/II	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82		12/09/86	
204C	NCPLX	ASMD LKR	IS/II	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82		12/09/86	
16 SINGLE-SHELL TANKS			TOTALS:	2226	177	168	0.0	0.0	345	295	2049	0						
++++++ S FARM STATUS ++++++																		
101S	NCPLX	SOUND	/PI	427	12	84	0.0	0.0	96	90	244	171	F	PS	09/16/80		03/18/88	*
102S	DSSF	SOUND	/PI	549	0	230	0.0	0.0	230	208	4	545	P	FP	04/28/82		03/18/88	
103S	DSSF	SOUND	/PI	248	17	85	0.0	0.0	102	79	10	221	M	S	11/20/80		06/01/89	*
104S	NCPLX	ASMD LKR	IS/II	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	(1)	12/12/84	
105S	NCPLX	SOUND	IS/II	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88		04/12/89	
106S	NCPLX	SOUND	/PI	543	0	185	0.0	99.8	185	162	32	511	P	FP	06/28/82		03/17/89	*
107S	NCPLX	SOUND	/PI	368	6	45	0.0	0.0	51	44	293	69	F	PS	09/25/80		03/12/87	*
108S	NCPLX	SOUND	/PI	604	0	127	0.0	151.6	127	105	4	600	P	MP	04/28/82		03/12/87	*
109S	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75		08/24/84	*
110S	NCPLX	SOUND	/PI	692	0	110	0.0	185.9	110	103	131	561	F	PS	01/31/79		03/12/87	*
111S	NCPLX	SOUND	/PI	596	10	195	0.0	3.3	205	134	139	447	P	FP	04/28/82		08/10/89	*
112S	NCPLX	SOUND	/PI	637	0	134	0.0	125.1	134	112	6	631	P	FP	06/28/82		03/24/87	*
12 SINGLE-SHELL TANKS			TOTALS:	5982	46	1399	0.0	791.0	1445	1192	1171	4765						

9 2 1 2 6 1 1 1 3 4 2

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
						++++++ SX FARM STATUS ++++++												
101SX	DC	SOUND	/PI	456	1	145	0.0	0.0	146	124	112	343	P	FP	04/28/82		03/10/89	
102SX	DSSF	SOUND	/PI	543	0	183	0.0	0.0	183	177	117	426	P	M	04/28/82		01/07/88	*
103SX	NCPLX	SOUND	/PI	652	1	226	0.0	0.0	258	236	115	536	F	S	07/15/91		12/17/87	*
104SX	DSSF	ASMD LKR	/PI	614	0	201	0.0	113.2	201	195	136	478	F	S	07/07/89		09/08/88	*
105SX	DSSF	SOUND	/PI	683	0	261	0.0	0.0	261	238	73	610	P	F	04/28/82		06/15/88	*
106SX	NCPLX	SOUND	/PI	538	61	194	0.0	0.0	255	233	12	465	F	PS	10/28/80		06/01/89	
107SX	NCPLX	ASMD LKR	IS/II	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82		03/06/87	
108SX	NCPLX	ASMD LKR	IS/II	115	0	6	0.0	0.0	6	0	115	0	P	M	04/28/82		03/06/87	
109SX	NCPLX	ASMD LKR	IS/II	250	0	10	0.0	0.0	10	0	250	0	P	M	04/28/82		05/21/86	
110SX	NCPLX	ASMD LKR	IS/II	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76		02/20/87	
111SX	NCPLX	ASMD LKR	IS/II	125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74		03/10/87	
112SX	NCPLX	ASMD LKR	IS/II	92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82		03/10/87	
113SX	NCPLX	ASMD LKR	IS/II	26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82		03/18/88	
114SX	NCPLX	ASMD LKR	IS/II	181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82		02/26/87	
115SX	NCPLX	ASMD LKR	IS/II	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82		03/31/88	
15 SINGLE-SHELL TANKS			TOTALS:	4453	63	1255	0.0	113.2	1349	1203	1532	2858						

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE - SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
							++++++ T FARM STATUS ++++++											
101T	NCLPX	SOUND	/PI	133	30	5	0.0	0.0	35	30	103	0	F	S	08/31/84		07/03/84	
102T	NCPLX	SOUND	IS/II	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84		06/28/89	
103T	NCPLX	ASMD LKR	IS/II	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	(1)	07/02/84	
104T	NCPLX	SOUND	/PI	445	3	47	0.0	0.0	50	44	442	0	P	MP	04/28/82		06/29/89	
105T	NCPLX	SOUND	IS/II	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87		05/14/87	
106T	NCPLX	ASMD LKR	IS/II	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82		06/29/89	
107T	NCPLX	ASMD LKR	/PI	180	9	13	0.0	0.0	22	16	171	0	P	FP	08/31/84		07/12/84	
108T	NCPLX	ASMD LKR	IS/II	44	0	0	0.0	0.0	0	0	44	0	P	M	04/28/82		07/17/84	
109T	NCPLX	ASMD LKR	IS/II	58	0	0	0.0	0.0	0	0	58	0	M	M	12/30/84	(1)	07/03/84	#1
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
October 1991

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					
						++++++ 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
October 1991

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

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

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE SOURCE SEE FOOTNOTE	LAST PHOTO DATE	CHG SINCE LAST MNTHLY REPORT
201U	NCPLX	SOUND	IS/II	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79		08/03/89	
202U	NCPLX	SOUND	IS/II	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79		08/08/89	
203U	NCPLX	SOUND	IS/II	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79		06/13/89	
204U	NCPLX	SOUND	IS/II	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79		06/13/89	
16 SINGLE-SHELL TANKS			TOTALS:	3550	168	1138	0.0	0.0	1306	1104	638	2744						

NOTE: +/- 1K gal differences are the result of rounding
(1) WHC-SD-RE-TI-178 SST STABILIZATION RECORD
(2) TANK FARMS COGNIZANT ENGINEER MONTHLY INPUT (RETAINED 10 YRS IN TFSA OFFICE)

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

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

Tank No.	Comments
102-BY	Information per Single-Shell Tanks Engineer: Jet pumping began June 13, 1991. Following entries were changed in the Inventory and Status by Tank section: Total Waste (Supernatant + Sludge + Saltcake) remains 341 Kgal Supernatant remains 0 Drainable Interstitial Liquid from 83 to 71 Kgal Drainable Liquid Remaining from 83 to 71 Kgal Pumpable Liquid Remaining from 61 to 49 Kgal Sludge remains 0 Saltcake remains 341 Kgal Pumped This Month was 11.8 and Total Pumped is 119.7 Kgal

Other changes to tank contents:

Information per Single-Shell Tanks Engineer:
The Drainable Interstitial Liquid, Drainable Liquid Remaining and Pumpable Liquid Remaining was changed for the tanks marked by an asterisk (*) in the "Chgs Since Last Mnthly Report" column. The DIL, DLR and PLR values were recalculated to document the predicted jet pump durations for 39 tanks not yet stabilized and 8 tanks which may require possible restabilization. Reference: Letter 9152682R3, R. E. Raymond to R. E. Gerton, DOE, "Jet Pump Duration to Interim Stabilize Remaining Single-Shell Tanks," dated November 11, 1991.

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

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APPENDIX D

PERFORMANCE SUMMARY

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

WASTE VOLUMES (Kgallons)

October 1991

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

SOURCE		THIS MONTH	FY1992 TO DATE
B PLANT		22	22
PUREX TOTAL (1)		10	10
PFP (1)		0	0
T PLANT (1)		30	30
S PLANT (1)		0	0
300/400 AREAS (1)		0	0
SULFATE WASTE -100 N (2)		0	0
TANK FARMS & SWL (6)		10	10
Tank Farms	10		
Saltwell Liquid	0		
OTHER GAINS		32	32
Slurry increase (3)	27		
Condensate	0		
Instrument change (7)	0		
Unknown (5)	5		
OTHER LOSSES		-50	-50
Slurry decrease	0		
Evaporation (4)	-24		
Instrument change (7)	0		
Unknown (5)	-26		
EVAPORATED		0	0
GROUTED		0	0
Total		54	54

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

Footnotes: See Next Page

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

SOURCE			THIS MONTH	FY1992 TO DATE
105-C	(8)	Gains	0	0
		Losses	-1	-1
106-C	(8)	Gains	8	8
		Losses	-4	-4
Total			3	3

CUMULATIVE EVAPORATION - 1950 TO PRESENT WASTE VOLUME REDUCTION

FACILITY	
242-B EVAPORATOR (9)	7172
242-T EVAPORATOR (1950's) (9)	9181
IN-TANK SOLIDIFICATION UNIT 1 (10)	11876
IN-TANK SOLIDIFICATION UNIT 2 (10)	15295
IN-TANK SOLID. UNIT 1 & 2 (10)	7965
(after conversion of Unit 1 to a cooler for Unit 2)	
242-T (Modified) (9)	24471
242-S EVAPORATOR (11)	41983
242-A EVAPORATOR (12)	65227
B PLANT (Cell 23) (13)	1185
REDOX (12)	12393
Total	196748

TOTAL THROUGHPUT

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

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

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

(1) Including Flush

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

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

(4) Aging waste tanks

(5) Unknown waste gains or losses may be the result of rounding calculations, clean water slowly leaking through a valve, changes in levels due to ambient temperature changes, different measuring devices being used by Tank Farm operators, transfers taking place during the end of the month, Tank Farm activities such as miscellaneous water additions not associated with facility waste generation, or the addition of water which is added to aging waste tanks and then evaporated off.

(6) Includes Tank Farms miscellaneous flushes and saltwell liquid, which results from pumping of single-shell tanks to double-shell tanks.

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

(8) Water is periodically added to 105-C and 106-C to provide evaporative cooling. Losses due to evaporation are calculated assuming all losses are evaporative losses.

WASTE VOLUME REDUCTION

(9) Currently inoperative. These evaporator systems (242-B and 242-T) were installed in 1952 in each of the two operating areas to remove water from the waste, and ran for approximately 4 yr after which both units were shut down. The 242-T Evaporator was reactivated in December 1965, and shut down again in April 1976.

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

(10) Currently inoperative. These two in-tank solidification (ITS) units provided in-tank heating. The ITS Unit 1 started up March 1965, and ITS Unit 2 started up February 1968. In August 1971, ITS Unit 1 was converted from an evaporator to a cooler for ITS Unit 2. Both units were shut down June 1974.

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

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

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

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APPENDIX E

LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANKS

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9 2 1 2 6 4 1 1 3 5 7

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

WASTE VOLUMES (Kgallons)

October 1991

TANK FARMS	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST				
A	8	439	447	390
AN	5444	37	5481	N/A
AP	5622	0	5622	N/A
AW	4045	157	4202	N/A
AX	3	370	373	304
AY	1764	2	1766	N/A
AZ	1796	3	1799	N/A
B	15	164	179	80
BX	50	155	205	135
BY	0	843	843	657
C	177	168	345	295
Total	18924	2338	21262	1861
WEST				
S	46	1399	1445	1192
SX	63	1255	1349	1203
SY	736	237	973	N/A
T	74	189	263	208
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1095	4499	5625	3707
TOTAL	20019	6837	26887	5568 (1)

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

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

N/A = Not applicable

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APPENDIX F

PUMPING RECORD

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TABLE F-1. PUMPING RECORD

(Kgallons)

October 1991

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE
EAST			
A	0.0	0.0	150.5
AN	N/A	N/A	N/A
AP	N/A	N/A	N/A
AW	N/A	N/A	N/A
AX	0.0	0.0	13.0
AY	N/A	N/A	N/A
AZ	N/A	N/A	N/A
B	0.0	0.0	0.0
BX	0.0	0.0	68.9
BY	11.8	11.8	1358.7
C	0.0	0.0	0.0
Total	11.8	11.8	1591.1
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	11.8	11.8	3730.9

NA = Not Applicable

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APPENDIX G

CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

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

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

October 1991

FACILITY	*LOCATION*	*PURPOSE (receives waste from:)*	*VOLUME OF CONTENTS (Gallons)*	*MONITORED BY*	*REMARKS*
EAST AREA					
A-302-A	A FARM	151-A DB	3616	CASS/FIC	
311-ER	B PLANT	151-ER, 152-ER DB	2044	CASS/FIC	PUMPED JUNE 29, 1991
152-AX	AX FARM	152-AX DB	O/S	MANUALLY	DIAL O/S, USING ZIP CORD
151-AZ	AZ FARM	152-AZ DB, AZ LOOP SEAL	2930	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	14961	MANUALLY	USING MANUAL TAPE FOR TANK
244-A-TK/SMP	AR VAULT	DCRT - RECEIVES FROM SEVERAL FARMS	1432	MCS	DIRECT GAL READING
204-AR	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	460	DIP TUBE	ALARMS ON CASS
417-A	A FARM	702-A PROCESS CONDENSATE	37760	DIP TUBE	
WEST AREA					
TX-302-C	TX FARM	154-TX DB	2941	CASS/FIC	
U-301-B	U FARM	151-U, 152-U, 153-U, 252-U DB	5273	CASS/FIC	
UX-302-A	U PLANT	154-UX DB	7675	CASS/MFIC	
241-S-304	S FARM	151-S DB	140	MT	OPERATIONAL 10/91, REPLACED S-302-A
244-S-TK/SMP	S FARM	DCRT - RECEIVES FROM SEVERAL FARMS	13256	MANUALLY	CWF
244-TX-TK/SMP	TX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	26490	MANUALLY	CWF, TANK MANUAL TAPE O/S

Total active facilities 15

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

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

INACTIVE - no longer receiving waste transfers

October 1991

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
A-302-B	A FARM	152-A DB	3207	CASS/MT	ISOLATED 1985, PROJECT B-138 INTERIM STABILIZED 1990
B-301-B	B FARM	151-B, 152-B, 153-B, 252-B DB	UNKNOWN	NM	ISOLATED 1985(1)
B-302-B	B FARM	154-B DB	UNKNOWN	NM	ISOLATED 1985(1)
BX-302-A	BX FARM	152-BR, 153-BX, 152-BXR, 152-BYR DB	UNKNOWN	NM	ISOLATED 1985(1)
BX-302-B	BX FARM	154-DB	UNKNOWN	NM	ISOLATED 1985(1)
BX-302-C	BX FARM	155-B DB	UNKNOWN	NM	ISOLATED 1985(1)
C-301-C	C FARM	151-C, 152-C, 153-C, 252-C DB	UNKNOWN	NM	ISOLATED 1985(1)
241-CX-70	HOT SEMI-	TRANSFER LINES	UNKNOWN	NM	ISOLATED, DECOMMISSION PROJ.
241-CX-72	WORKS	TRANSFER LINES	UNKNOWN	NM	SEE DWG H-2-95-501, 2/5/87
244-AR	A COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	UNKNOWN	NM	BEING UPGRADED
001-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
002-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
003-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
011-BXR-TK/SMP	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
361-B-TANK	B PLANT	DRAINAGE FROM B-PLANT	UNKNOWN	NM	INTERIM STABILIZED 1985(1)

Total East Area inactive facilities 15

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

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

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

INACTIVE - no longer receiving waste transfers

October 1991

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	BY	REMARKS
S-302	S FARM	240-S-151 DB	2380	CASS/FIC	ASSUMED LEAKER EPDA 85-04
S-302-A	S FARM	241-S-151 DB	54	CASS/FIC	ASSUMED LEAKER TF-EFS-90-042 PARTIALLY FILLED WITH GROUT 2/91 DETERMINED STILL ASSUMED LEAKER AFTER LEAK TEST
S-302-B	S FARM	S ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
SX-304(302)	SX FARM	152-SX TRANSFER BOX, 151-SX DB	UNKNOWN	NM	ISOLATED 1985(1)
TX-302	TX FARM	153-TX DB	UNKNOWN	NM	ISOLATED 1985(1)
TX-302-X-B	TX FARM	TX ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
TX-302-B	TX FARM	155-TX DB	O/S	CASS/MT	WORK REQ. ISSUED TO REPLACE O/S MT
TY-302-A	TY FARM	153-TX DB	UNKNOWN	NM	ISOLATED 1985(1)
TY-302-B	TY FARM	TY ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
001-UR-TK/SMP	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
002-UR-TK/SMP	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
003-UR-TK/SMP	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
001-TXR-TK/SMP	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
002-TXR-TK/SMP	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
003-TXR-TK/SMP	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
361-T-TANK	T PLANT	DRAINAGE FROM T-PLANT	UNKNOWN	NM	ISOLATED 1985(1)
361-U-TANK	U PLANT	DRAINAGE FROM U-PLANT	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-U-TK/SMP	U FARM	DCRT - RECEIVES FROM SEVERAL FARMS	UNKNOWN	NM	NOT YET IN USE

Total West Area inactive facilities 19

LEGEND: DB - Diversion Box
DCRT - Double-Contained Receiver Tank
FIC - Food Instrument Corporation
MT - Manual Tape
O/S - Out of Service
CASS - Computer Automated Surveillance System
NM - Not Monitored

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

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APPENDIX H

LEAK VOLUME ESTIMATES

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

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

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

FOOTNOTES: SEE NEXT PAGE

TABLE H-1. Single-Shell Tank Leak Volume Estimates.
(Sheet 2 of 4)

Footnotes:

(1) Current estimates (see reference b) are that 610 Kgal of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with *Dangerous Waste Regulations*, Washington Administrative Code (WAC), 173-303-070 (2)(a)(ii), 1989, any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated and moved into compliance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgal to 277 Kgal) is based on other document estimates (see References).

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

2. Reference (b) contains an estimate of 5 Kgal to 30 Kgal for the leak while the tank was being sluiced from August 1968 to November 1970.

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

4. Reference (c) contains an estimate that 378 to 410 Kgal evaporated out of the tank from November 1970 to December 1978.

Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgal of cooling water leakage from November 1970 to December 1978.

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

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

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

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

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

(5) The leak volume estimate date for these tanks is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.

(6) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicative of a continuing leak <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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