ENGINEERING CHANGE NOTICE

1 ECN 669441

Proj ECN

2 ECN Category (mark one)	3 Originator's Name Organization MSIN and Telephone No	4 USQ Required?	5 Date
Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	B M Hanlon Inventory & Flowsheet Eng R3-72 373-2053	☐ Yes ☒ No	07/18/01
	6 Project Title/No /Work Order No Waste Tank Summary Report for Month Ending June 30 2001	7 Bldg./Sys./Fac No N/A	8 Approval Designator N/A
	9 Document Numbers Changed by this ECN (includes sheet no and rev) HNF-EP-0182 Rev 158	10 Related ECN No(s) N/A	11 Related PO No N/A

12a Modification Work	12b Work Package No	12c Modification Work Completed	12d Restored to Original Condition (Temp or Standby ECNs only)
☐ Yes (fill out Blk 12b) ☒ No (NA Blks 12b 12c 12d)	N/A	N/A Design Authority/Cog Engineer Signature & Date	N/A Design Authority/Cog Engineer Signature & Date

13a Description of Change

13b Design Baseline Document? ☐ Yes ☒ No

Complete revision

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14a Justification (mark one)	14b Justification Details
Criteria Change ☐ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const ☐ Const Error/Omission ☐ Design Error/Omission ☐	This ECN is being generated to update waste tank farm summary information

15 Distribution (include name MSIN and no of copies)

Distribution list attached following document

RELEASE STAMP

DATE JUL 25 2001
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HANFORD RELEASE
ID 2

ENGINEERING CHANGE NOTICE

1 ECN (use no from pg 1): 669441

16 Design Verification Required	17 Cost Impact		18 Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
☐ Yes	Additional ☐ $ _____	Additional ☐ $ _____	Improvement ☐ _____
☒ No	Savings ☐ $ _____	Savings ☐ $ _____	Delay ☐ _____

19 Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const Spec	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac Proc Samp Schedule	☐	Tickler File	☐
Environmental Report	☐	Inspection Plan	☐	_____	☐
Environmental Permit	☐	Inventory Adjustment Request	☐	_____	☐

20 Other Affected Documents (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
N/A		

21 Approvals

	Signature	Date		Signature	Date
Design Authority			Design Agent		
Cog Eng	B M Hanlon BMHanlon	7/18/01	PE		
Cog Mgr	N W Kirch NWKirch	7/24/01	QA		
QA			Safety		
Safety			Design		
Environ			Environ		
Other			Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Waste Tank Summary Report for Month Ending June 30, 2001

Prepared for the U S Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
Hanford Group, Inc
Richland Washington

Contractor for the U S Department of Energy
Office of River Protection under Contract DE AC06 99RL14047

WASTE TANK SUMMARY REPORT FOR MONTH ENDING JUNE 30, 2001

BM HANLON
CH2M HILL Hanford Group Inc
Richland WA 99352
U S Department of Energy Contract DE AC27 99RL14047

EDT/ECN ECN-669441 UC
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Key Words REPORT WASTE TANK SUMMARY

Abstract See page iii of document

7/25/01
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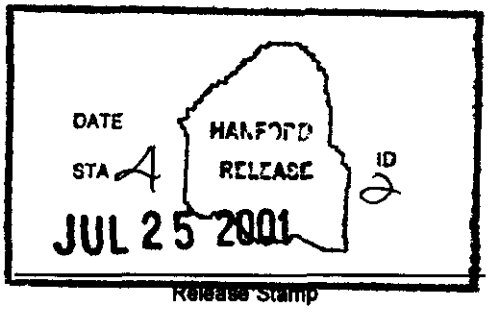

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RECORD OF REVISION

(1) Document Number: HNF-EP-0182

(2) Title: WASTE TANK SUMMARY REPORT FOR MONTH ENDING JUNE 30 2001

Change Control Record

(3) Revision	(4) Description of Change Replace Add and Delete Pages	Authorized for Release	
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153	(7) EDT-631372	BM Hanlon	JS Garfield
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Waste Tank Summary Report for Month Ending June 30, 2001

B M Hanlon
CH2M HILL Hanford Group Inc

Date Published
July 2001

Prepared for the U S Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
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P O Box 1500
Richland Washington

Contractor for the U S Department of Energy
Office of River Protection under Contract DE AC06 99RL14047

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WASTE TANK SUMMARY REPORT

B M Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities and supplemental information regarding tank surveillance anomalies and ongoing investigations This report is intended to meet the requirement of U S Department of Energy-Richland Operations Office Order 435 1 (DOE-RL July 1999 Radioactive Waste Management U S. Department of Energy-Richland Operations Office Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm tanks

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METRIC CONVERSION CHART		
1 inch	=	2 54 centimeters
1 foot	=	30 48 centimeters
1 gallon	=	3 79 liters
1 ton	=	0 91 metric tons
$°F = \left(\frac{9}{5}°C\right) + 32$		
1 Btu/h = 0 2931 watts (International Table)		

WASTE TANK SUMMARY REPORT
For Month Ending June 30 2001

Note Changes from the previous month are in bold print

I WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks[b]	28 double-shell	10/86
Single Shell Tanks	149 single-shell	1966
Assumed Leaker Tanks	67 single-shell	07/93
Sound Tanks	28 double-shell 82 single-shell	1986 07/93
Interim Stabilized Tanks[a]	**129 single-shell**	**06/01**
Not Interim Stabilized	**20 single-shell**	**06/01**
Intrusion Prevention Completed	108 single-shell	09/96
Controlled, Clean, and Stable[f]	36 single-shell	09/96
Watch List Tanks[d] Total	19 single-shell 5 double-shell 24 tanks	09/00 01/01

Of the 129 tanks classified as Interim Stabilized, 65 are listed as Assumed Leakers (See Table D-1)

[b] Five double-shell tanks (SY 101 was removed from the list in January 2001) are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with Safety Measures for Waste Tanks at Hanford Nuclear Reservation, Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991* Public Law 101 510 November 5 1990

Two of these tanks are Assumed Leakers (BY 105 BY 106) (See Table D-1)

[d] See Appendix B for more information on Watch List Tanks

Dates for the Watch List tanks are officially added to or removed from the Watch List dates Eighteen tanks were removed from the Organic Watch List in December 1998 the last two tanks (C-102 and C-103) were removed from the Organic Watch List in August 2000 In December 1999 tank C-106 was removed from the High Heat Load Watch List. In January 2001 DST tank SY 101 was removed from the Hydrogen Watch List. Only the Hydrogen Watch List remains, which contains 19 SSTs and 5 DSTs

[f] The TY tank farm was officially declared Controlled, Clean, and Stable (CCS) in March 1996 The TX tank farm and BX tank farms were declared CCS in September 1996

II WASTE TANK INVESTIGATIONS

This section includes all single- or double-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases or drywell radiation level increases in excess of established criteria

A Assumed Leakers or Assumed Re-leakers (See Appendix F for definition of Re-leaker')

This section includes all single- or double-shell tanks or catch tanks for which an off normal or unusual occurrence report has been issued, or for which a waste tank investigation is in progress for assumed leaks or re-leaks Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker or c) the investigation is completed

B Tanks with increases indicating possible intrusion

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated

Candidate Intrusion List Surveillance data in the following tanks indicate possible intrusions

Tank 241-B 202
Tank 241 BX 101
Tank 241 BX 103
Tank 241 BY 103

The surveillance data was last reviewed on the tanks listed as having probable liquid intrusions Memo 74B20 99-045 dated November 22 1999

III SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

A **Interim Stabilization in Single-Shell Tanks**

Tank 241-S-109 was Interim Stabilized on June 11, 2001 Total waste 533 4 Kgallons, Supernate 0, Drainable Interstitial Liquid 15 7 Kgallons, Drainable Liquid Remaining 15 7 Kgallons, Pumpable Liquid Remaining 11 5 Kgallons, Sludge 13 0 Kgallons, Saltcake 520 4 Kgallons (See also Table E-1, footnote #13 for further information)

B Single Shell Tanks Saltwell Jet Pumping (See Table A 6 footnotes for further information)

Tank 241 A 101 - Pumping began May 6 2000 No pumping has occurred since August 2000 a total of 14 1 Kgallons has been pumped from this tank since the start of pumping in May 2000

Tank 241-AX-101 Pumping began July 29 2000 No pumping between August 2000 and March 2001 pumping began again on March 22 2001 Pumping was shut down on April 3 2001 due to a transfer line failure A total of 21 7 Kgallons has been pumped since the start of pumping in July 2000

Tank 241 S 102 - Pumping problems forced many shutdowns The pump was replaced and pumping resumed on February 19 2000 Problems with the new pump forced a shutdown on March 23 2000 Pumping was interrupted in early June 2000 The flushing involved in trying to resume pumping in June resulted in a net addition to the tank No pumping has occurred since June 2000 a total of 56 8 Kgallons has been pumped from this tank since start of pumping in March 1999

Tank 241 SX 101 - Pumping began November 22 2000 The pump failed on December 9 2000 No pumping since December 2000 A total of 19 2 Kgallons has been pumped from this tank

Tank 241 SX 103 Pumping began October 26 2000 All supernate has been removed currently evaluating whether pumping will be restarted A total of 116 3 Kgallons has been pumped from this tank since start of pumping in October 2000

Tank 241 SX 105 - Pumping began August 8 2000 Pumping was shut down in late April 2001 when the saltwell screen in flow rate was measured at approximately 0 02 GPM This tank is being evaluated to determine if it can be Interim Stabilized A total of 152 6 Kgallons has been pumped since start of pumping in August 2000

Tank 241 U 102 - Pumping began January 20 2000 **During June 2001, a total of 1 3 Kgallons was pumped, a total of 81 8 Kgallons has been pumped from this tank since start of pumping in January 2000**

Tank 241 U 109 Pumping began March 11 2000 The saltwell pump was replaced following its failure in December 2000 and pumping was restarted March 30 2001 **During June 2001, a total of 3 4 Kgallons was pumped, a total of 73 1 Kgallons has been pumped from this tank since start of pumping in March 2000**

B RP-CHG-TANKFARM-2001-0004, Occurrence Report, "Corrosion Observed in DST Tank 241 AY-101 During Video Inspection of the Annulus Section, Off Normal Occurrence, **Latest Update. June 28, 2001**

Corrosion of the primary and secondary liners of DST AY-101 was observed during video inspections of the tank annulus region in 1999 and 2000 Follow-up video inspections that were completed on January 29 2001 show more extensive corrosion in localized regions of the primary and secondary liners when viewed from the annulus side of the primary liner

In addition, ultrasonic testing data collected during March 2001 and evaluated on March 22 2001 show localized thinning of approximately 19 4 percent versus a reporting limit of 20 percent The corrosion was confined to a small area on the inside of the primary liner at the previous waste-air interface level approximately 343 inches above the bottom of the tank Thus corrosion has occurred on both the outside and the inside of the primary liner and on the inside of the secondary liner There are no visual or radiological indications of waste leakage from the tank

An operational restriction has been imposed to limit the waste level in this tank to less than 80 inches until further evaluations can be performed

Internal tank videos have revealed two stained areas on the primary side of the internal tank wall Preliminary evaluation by an expert corrosion engineer panel indicates the stains potentially denote past leakage of known water intrusion from the annulus to the interior of the tank Further evaluations will be necessary to assess the potential for penetration of the primary tank wall The potential penetration points are approximately 22 feet above the waste surface which is being controlled at 80 inches above the floor of the tank There is no known evidence of any leakage from the tank to the annulus space or any evidence of structural damage to the tank

Testing and evaluation procedures are being discussed by tank and corrosion specialists from across the U S Department of Energy complex and the private sector

This Update is being submitted to extend the due date of this report pending PAAA screening and development of a corrective action plan

An Update or a Final Report will be submitted no later than August 15, 2001

C **RP-CHG-TANKFARM-2001-0046, Occurrence Report, "241-C-106 Liquid Level Lowering Due to Evaporation," Off-Normal Occurrence, Notification date June 15, 2001**

Operation of the Tank 241-C-106 Primary Tank Exhauster (P-16) has lowered the tank waste liquid level through evaporation The present calculated liquid level has approached the minimum liquid level allowed by Tank Farms Operating Specification Document, OSD-T-151-00013

Actions were taken for Limiting Condition for Operation, 3 2 2, and the P-16 exhauster was secured An engineering group is evaluating

D **RP-CHG-TANKFARM-2001-0052, Occurrence Report, "Gas Release Event at 241 AN-105," Off-Normal Occurrence, Notification date, June 27, 2001,**

Tank 241-AN-105 had a gas release during the evening of June 24, 2001, starting at approximately 1820 hours and lasting approximately four hours The maximum hydrogen gas reading peaked near 5,800 PPM It dropped to 4,000 PPM and then steadily declined to around 200 PPM. The level continues to slowly abate

Hydrogen releases in this tank are expected as the tank is identified as a hydrogen producer The hydrogen release is monitored by a Standard Hydrogen Monitoring Systems (SHMS). The SHMS did not alarm as this release is below the alarm set point of 6,250 PPM The last similar release was in August of 1999

Gas release events (GRE) are also characterized by a change in the tank level The tank level lowered from 410 4 inches to 408 7 inches The level has increased to 410 4 inches currently

An engineering evaluation was performed, and environmental notifications were made

E Changes to the Monthly Summary Report

The Report is in the process of being revised to be more current, pertinent, and to eliminate redundancies

Appendices B (Performance Summary) and C (Double-Shell Waste Type and Space Allocation) have been deleted It is anticipated that some of this information will be included in subsequent reports in a different format.

Table D-1 and Footnotes (currently Table B-1, Temperature Monitoring in Watch List Tanks) have been revised and combined into one page Individual tank temperatures are no longer shown, rising temperature trends or other anomalies in temperatures will be shown if they occur

Table D-2 (currently Table B-2, Temperature Monitoring in Non-Watch List Tanks) has been revised Individual tank temperatures are no longer shown, anomalies in temperatures will be shown if they occur

Table D-4 (currently Table B-4, Single-Shell Tanks Monitoring Compliance Status) has been revised to list only those tanks which have monitoring equipment out of service (The previous list showed all 149 tanks) This results in a reduction of 3 pages

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APPENDIX A

MONTHLY SUMMARY

TABLE A-1. MONTHLY SUMMARY

Tank Status

June 30, 2001

	200 EAST AREA	200 WEST AREA	TOTAL	
IN SERVICE	25	03	28	(1)
OUT OF SERVICE	66	83	149	
SOUND	59	51	110	
ASSUMED LEAKER	32	35	67	
INTERIM STABILIZED	60	69	129	
ISOLATED				
PARTIAL INTERIM	11	30	41	
INTRUSION PREVENTION COMPLETE	55	53	108	
CONTROLLED, CLEAN, AND STABLE	12	24	36	

WASTE VOLUMES (Kgallons)

		200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AW	Aging waste	1783	0	1783	0	1783	1783
CC	Complexant concentrate waste	3167	1067	4234	0	4234	4234
CP	Concentrated phosphate waste	1088	0	1088	0	1088	1088
DC	Dilute complexed waste	1677	963	2640	1	2639	2640
DN	Dilute non-complexed waste	1063	0	1063	0	1063	1063
PD	PUREX/TRUsolids	0	0	0	0	0	0
NCPLX	Non-complexed waste	164	151	315	315	0	315
DSSF	Double-shell slurry feed	6350	168	6518	1035	5483	6518
TOTAL SUPERNATANT		15292	2349	17641	1351	16290	17641
SOLIDS							
Sludge		6555	5648	12203	11059	1144	12203
Saltcake		8009	16150	24159	20850	3309	24159
TOTAL SOLIDS		14564	21798	36362	31909	4453	36362
TOTAL WASTE		29856	24147	54003	33260	20743	54003
AVAILABLE SPACE IN TANKS		9881	672	10553	0	10553	10553
DRAINABLE INTERSTITIAL LIQUID (2)		1425	1974	3399	3399	(2)	3399
DRAINABLE LIQUID REMAINING (2)		2458	2292	4750	4750	(2)	4750

(1) Includes five double-shell tanks on the Hydrogen Watch List which are prohibited from receiving additional waste (AN-103, AN-104, AN-105, AW-101, and SY-103) by Public Law 101-510. SY-101 was removed from the Hydrogen Watch List in January 2001 and will return to service later in fiscal year 2001.

(2) Drainable Interstitial Liquid and Drainable Liquid Remaining for single-shell tanks only; not applicable for double-shell tanks

TABLE A-2. TANK USE SUMMARY

June 30, 2001

TANK FARMS	TANKS AVAILABLE TO RECEIVE WASTE TRANSERS	SOUND	ASSUMED LEAKER	ISOLATED TANKS: PARTIAL INTERIM ISOLATED	ISOLATED TANKS: INTRUSION PREVENTION COMPLETED	ISOLATED TANKS: CONTROLLED CLEAN, AND STABLE	INTERIM STABILIZED TANKS
EAST							
A	0	3	3	2	4	0	5
AN	7 (1)	7	0	0	0	0	0
AP	8	8	0	0	0	0	0
AW	6 (1)	6	0	0	0	0	0
AX	0	2	2	1	3	0	3
AY	2	2	0	0	0	0	0
AZ	2	2	0	0	0	0	0
B	0	6	10	0	16	0	16
BX	0	7	5	0	12	12	12
BY	0	7	5	5	7	0	10
C	0	9	7	3	13	0	14
Total	25	59	32	11	55	12	60
WEST							
S	0	11	1	10	2	0	7
SX	0	5	10	6	9	0	11
SY	3 (1)	3	0	0	0	0	0
T	0	9	7	5	11	0	16
TX	0	10	8	0	18	18	18
TY	0	1	5	0	6	6	6
U	0	12	4	9	7	0	11
Total	3	51	35	30	53	24	69
TOTAL	28	110	67	41	108	36	129

(1) Five Double-Shell Tanks on the Hydrogen Watch List are prohibited from receiving additional waste (AN-103, 104, 105, AW-101, and SY-103) by Public Law 101-510. SY-101 was removed from the Hydrogen Watch List in January 2001 and will return to service later in fiscal year 2001.

TABLE A-3. PUMPING RECORD, LIQUID STATUS, AND PUMPABLE LIQUID REMAINING IN TANK FARMS

June 30, 2001

	Waste Volumes (Kgallons)					
TANK FARMS	PUMPED THIS MONTH	CUMULATIVE TOTAL PUMPED 1979 TO DATE	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE SST LIQUID REMAINING
EAST						
A	0.0	164.6	503	161	665	622
AN	N/A	N/A	3772	N/A	N/A	N/A
AP	N/A	N/A	6272	N/A	N/A	N/A
AW	N/A	N/A	1907	N/A	N/A	N/A
AX	0.0	34.7	364	105	469	433
AY	N/A	N/A	526	N/A	N/A	N/A
AZ	N/A	N/A	1783	N/A	N/A	N/A
B	0.0	0.0	15	262	277	203
BX	N/A	200.2	24	127	N/A	N/A
BY	0.0	1567.8	0	581	581	498
C	0.0	103.0	126	189	315	207
Total	0.0	2070.3	15292	1425	2307	1963
WEST						
S	0.0	963.9	76	593	669	541
SX	0.0	666.9	134	318	452	379
SY	N/A	N/A	2030	N/A	N/A	N/A
T	0.0	245.7	29	218	246	168
TX	N/A	1205.7	9	297	N/A	N/A
TY	N/A	29.9	0	53	N/A	N/A
U	4.7	380.4	71	495	566	480
Total	4.7	3492.5	2349	1974	1933	1568
TOTAL	4.7	5562.8	17641	3399	4240	3531

N/A = Not applicable for Double-Shell Tank Farms, and Single-Shell Tank Farms which have been declared Controlled, Clean and Stable (BX, TX, and TY).

TABLE A-4. INVENTORY SUMMARY BY TANK FARM

June 30, 2001

			SUPERNATANT LIQUID VOLUMES (Kgallons)									SOLIDS VOLUME		
TANK FARM	TOTAL WASTE	AVAIL SPACE	AW	CC	CP	DC	DN	PD	NCPLX	DSSF	TOTAL	SLUDGE	SALT CAKE	TOTAL
EAST														
A	1479	0	0	0	0	0	0	0	0	503	503	574	402	976
AN	5521	2459	0	1778	0	0	253	0	0	1741	3772	0	1749	1749
AP	6361	2759	0	1389	1088	1601	37	0	0	2157	6272	0	89	89
AW	3355	3485	0	0	0	0	322	0	0	1585	1907	624	824	1448
AX	812	0	0	0	0	0	0	0	0	364	364	26	422	448
AY	818	1142	0	0	0	75	451	0	0	0	526	292	0	292
AZ	1940	36	1783	0	0	0	0	0	0	0	1783	157	0	157
B	1909	0	0	0	0	0	0	0	15	0	15	1211	683	1894
BX	1490	0	0	0	0	0	0	0	24	0	24	1259	207	1466
BY	4387	0	0	0	0	0	0	0	0	0	0	754	3633	4387
C	1784	0	0	0	0	1	0	0	125	0	126	1658	0	1658
Total	29856	9881	1783	3167	1088	1677	1063	0	164	6350	15292	6555	8009	14564
WEST														
S	5116	0	0	0	0	0	0	0	75	1	76	1184	3856	5040
SX	3726	0	0	0	0	0	0	0	0	134	134	927	2665	3592
SY	2748	6772	0	1067	0	963	0	0	0	0	2030	71	647	718
T	1877	0	0	0	0	0	0	0	29	0	29	1703	145	1848
TX	6810	0	0	0	0	0	0	0	9	0	9	697	6104	6801
TY	639	0	0	0	0	0	0	0	0	0	0	529	110	639
U	3231	0	0	0	0	0	0	0	38	33	71	537	2623	3160
Total	24147	6772	0	1067	0	963	0	0	151	168	2349	5648	16150	21798
TOTAL	54003	16653	1783	4234	1088	2640	1063	0	315	6518	17641	12203	24159	36362

TABLE A-5. INVENTORY AND STATUS BY TANK - DOUBLE-SHELL TANKS

June 30, 2001

TANK STATUS								SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MATL	TANK STATUS	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (1) (Kgal)	SUPERNATANT LIQUID (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
AN TANK FARM STATUS													
AN-101	DN	SOUND	DRCVR	92.0	253	887	253	0	0	06/30/99			
AN-102	CC	SOUND	CWHT	383.3	1054	86	965	0	89	06/30/99			
AN-103	DSS	SOUND	CWHT	348.0	957	183	498	0	459	06/30/99	10/29/87		
AN-104	DSSF	SOUND	CWHT	382.5	1052	88	607	0	445	06/30/99	08/19/88		
AN-105	DSSF	SOUND	CWHT	410.2	1128	12	636	0	492	06/30/99	01/26/88		
AN-106	CC	SOUND	CWHT	13.8	38	1102	21	0	17	06/30/99			
AN-107	CC	SOUND	CWHT	377.8	1039	101	792	0	247	06/30/99	09/01/88		
7 DOUBLE-SHELL TANKS				TOTALS:	5521	2459	3772	0	1749				
AP TANK FARM STATUS													
AP-101	DSSF	SOUND	DRCVR	404.7	1113	27	1113	0	0	05/01/89			
AP-102	CP	SOUND	DRCVR	395.6	1088	52	1088	0	0	07/11/89			
AP-103	CC	SOUND	DRCVR	102.2	281	859	281	0	0	05/31/96			
AP-104	CC	SOUND	DRCVR	402.9	1108	32	1108	0	0	10/13/88			
AP-105	DSSF	SOUND	CWHT	412.0	1133	7	1044	0	89	06/30/99		09/27/95	
AP-106	DC	SOUND	DRCVR	225.8	621	519	621	0	0	10/13/88			
AP-107	DC	SOUND	DRCVR	356.4	980	160	980	0	0	10/13/88			
AP-108	DN	SOUND	DRCVR	13.5	37	1103	37	0	0	10/13/88			
8 DOUBLE-SHELL TANKS				TOTALS:	6361	2759	6272	0	89				
AW TANK FARM STATUS													
AW-101	DSSF	SOUND	CWHT	409.5	1126	14	738	0	388	10/31/00	03/17/88		
AW-102	DN	SOUND	EVFD	32.0	88	1052	58	30	0	01/31/01	02/02/83		
AW-103	DSSF	SOUND	DRCVR	400.7	1102	38	789	273	40	06/30/99			
AW-104	DN	SOUND	DRCVR	114.9	316	824	93	66	157	06/30/99	02/02/83		
AW-105	DN	SOUND	DRCVR	154.9	426	714	171	255	0	06/30/99			
AW-106	DSSF	SOUND	SRCVR	108.0	297	843	58	0	239	06/30/99	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS:	3355	3485	1907	624	824				

TABLE A-5. INVENTORY AND STATUS BY TANK - DOUBLE-SHELL TANKS

June 30, 2001

TANK STATUS								SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MATL	TANK STATUS	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (1) (Kgal)	SUPERNATANT LIQUID (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
AY TANK FARM STATUS													
AY-101	DC	SOUND	DRCVR	66.5	183	797	75	108	0	06/30/99	12/28/82		
AY-102	DN	SOUND	DRCVR	230.9	635	345	451	184	0	10/31/00	04/28/81		
2 DOUBLE-SHELL TANKS				TOTALS	818	1142	526	292	0				
AZ TANK FARM STATUS													
AZ-101	AW	SOUND	CWHT	343.3	944	36	892	52	0	06/30/98	08/18/83		
AZ-102	AW	SOUND	DRCVR	362.2	996	0	891	105	0	06/30/99	10/24/84		
2 DOUBLE-SHELL TANKS				TOTALS	1940	36	1783	157	0				
SY TANK FARM STATUS													
SY-101	CC	SOUND	CWHT	352.7	970	170	695	0	275	06/30/99	04/12/89		
SY-102	DC	SOUND	DRCVR	376.0	1034	106	963	71	0	06/30/99	04/29/81		
SY-103	CC	SOUND	CWHT	270.5	744	396	372	0	372	06/30/99	10/01/85		
3 DOUBLE-SHELL TANKS				TOTALS	2748	672	2030	71	647				
GRAND TOTAL					20743	10553	16290	1144	3309				

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

Available Space Calculations Used in this Document	
Tank Farms	(Most Conservative)
AN, AP, AW, SY	1,140 Kgal (414.5 in.)
AY, AZ (Aging Waste)	980 Kgal (356.4 in.)

NOTE: Supernate + Sludge (includes liquid) + Saltcake (includes liquid) = Total Waste

(1) Available Space volumes include restricted space

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
A TANK FARM STATUS																
A-101	DSSF	SOUND	/PI	877	494	95	0.0	14.1	590	574	3	380	09/30/99	08/21/85		(a)
A-102	DSSF	SOUND	IS/PI	41	4	8	0.0	39.5	12	4	15	22	07/27/89	07/20/89		
A-103	DSSF	ASMD LKR	IS/IP	371	5	45	0.0	111.0	50	43	366	0	06/03/88	12/28/88		
A-104	NCPLX	ASMD LKR	IS/IP	28	0	4	0.0	0.0	4	0	28	0	01/27/78	06/25/86		
A-105	NCPLX	ASMD LKR	IS/IP	37	0	0	0.0	0.0	0	0	37	0	10/31/00	08/20/86		
A-106	CP	SOUND	IS/IP	125	0	9	0.0	0.0	9	1	125	0	09/07/82	08/19/86		
6 SINGLE-SHELL TANKS			TOTALS	1479	503	161	0.0	164.6	665	622	574	402				
AX TANK FARM STATUS																
AX-101	DSSF	SOUND	/PI	662	364	74	0.0	21.7	438	422	3	295	09/30/99	08/18/87		(b)
AX-102	CC	ASMD LKR	IS/IP	30	0	7	0.0	13.0	7	0	7	23	06/30/99	06/05/89		
AX-103	CC	SOUND	IS/IP	112	0	23	0.0	0.0	23	11	8	104	06/30/99	08/13/87		
AX-104	NCPLX	ASMD LKR	IS/IP	8	0	1	0.0	0.0	1	0	8	0	06/30/99	08/18/87		
4 SINGLE-SHELL TANKS			TOTALS:	812	364	105	0.0	34.7	469	433	26	422				
B TANK FARM STATUS																
B-101	NCPLX	ASMD LKR	IS/IP	113	0	24	0.0	0.0	24	17	0	113	06/30/99	05/19/83		
B-102	NCPLX	SOUND	IS/IP	32	4	7	0.0	0.0	11	4	0	28	06/30/99	08/22/85		
B-103	NCPLX	ASMD LKR	IS/IP	59	0	11	0.0	0.0	11	3	0	59	06/30/99	10/13/88		
B-104	NCPLX	SOUND	IS/IP	371	1	45	0.0	0.0	46	42	309	61	06/30/99	10/13/88		
B-105	NCPLX	ASMD LKR	IS/IP	158	0	20	0.0	0.0	20	16	28	130	06/30/99	05/19/88		
B-106	NCPLX	SOUND	IS/IP	117	1	25	0.0	0.0	26	19	0	116	02/29/00	02/28/85		
B-107	NCPLX	ASMD LKR	IS/IP	165	1	22	0.0	0.0	23	19	93	71	06/30/99	02/28/85		
B-108	NCPLX	SOUND	IS/IP	94	0	15	0.0	0.0	15	11	53	41	06/30/99	05/10/85		
B-109	NCPLX	SOUND	IS/IP	127	0	21	0.0	0.0	21	17	63	64	06/30/99	04/02/85		
B-110	NCPLX	ASMD LKR	IS/IP	246	1	27	0.0	0.0	28	20	245	0	02/28/85	03/17/88		
B-111	NCPLX	ASMD LKR	IS/IP	237	1	23	0.0	0.0	24	29	236	0	06/28/85	06/26/85		
B-112	NCPLX	ASMD LKR	IS/IP	33	3	4	0.0	0.0	7	3	30	0	05/31/85	05/29/85		
B-201	NCPLX	ASMD LKR	IS/IP	29	1	4	0.0	0.0	5	1	28	0	04/28/82	11/12/86	06/23/95	
B-202	NCPLX	SOUND	IS/IP	27	0	4	0.0	0.0	4	0	27	0	05/31/85	05/29/85	06/15/95	
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	1	50	0	05/31/84	11/13/86		
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	1	49	0	05/31/84	10/22/87		
16 SINGLE-SHELL TANKS			TOTALS	1909	15	262	0.0	0.0	277	203	1211	683				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
BX TANK FARM STATUS																
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	4	0.0	0.0	5	1	42	0	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	0	0.0	0.0	0	0	96	0	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	71	9	4	0.0	0.0	13	9	62	0	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	93	3	4	0.0	17.4	7	3	90	0	02/29/00	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	4	0.0	15.0	9	5	46	0	06/30/99	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	4	0.0	14.0	4	0	38	0	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	36	0.0	23.1	37	33	344	0	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	4	0.0	0.0	4	0	26	0	07/31/79	05/05/94		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	25	0.0	8.2	25	20	193	0	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	3	28	0.0	1.5	31	26	133	71	06/30/99	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	5	0.0	116.9	6	2	25	136	06/30/99	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	9	0.0	4.1	10	7	164	0	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS			TOTALS:	1490	24	127	0.0	200.2	151	106	1259	207				
BY TANK FARM STATUS																
BY-101	NCPLX	SOUND	IS/IP	387	0	28	0.0	35.8	28	24	109	278	05/30/84	09/19/89		
BY-102	NCPLX	SOUND	IS/PI	277	0	40	0.0	159.0	40	33	0	277	05/01/95	09/11/87	04/11/95	
BY-103	NCPLX	ASMD LKR	IS/PI	400	0	58	0.0	95.9	58	53	9	391	06/30/99	09/07/89	02/24/97	
BY-104	NCPLX	SOUND	IS/IP	326	0	40	0.0	329.5	40	36	150	176	06/30/99	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	121	0.0	0.0	121	111	48	455	08/31/99	07/01/86		
BY-106	NCPLX	ASMD LKR	/PI	562	0	132	0.0	63.7	132	119	84	478	12/31/98	11/04/82		
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	39	0.0	56.4	39	35	40	226	06/30/99	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	33	0.0	27.5	33	26	154	74	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	IS/PI	290	0	31	0.0	157.1	31	26	57	233	07/08/87	06/18/97		
BY-110	NCPLX	SOUND	IS/IP	398	0	21	0.0	213.3	21	17	103	295	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	14	0.0	313.2	14	6	0	459	06/30/99	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	24	0.0	116.4	24	12	0	291	06/30/99	04/14/88		
12 SINGLE-SHELL TANKS			TOTALS:	4387	0	581	0.0	1567.8	581	498	754	3633				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
C TANK FARM STATUS																
C-101	NCPLX	ASMD LKR	IS/IP	88	0	4	0.0	0.0	4	0	88	0	11/29/83	11/17/87		
C-102	DC	SOUND	IS/IP	316	0	62	0.0	46.7	62	55	316	0	09/30/95	05/18/76	08/24/95	
C-103	NCPLX	SOUND	/PI	198	79	18	0.0	0.0	97	83	119	0	12/31/98	07/28/87		
C-104	CC	SOUND	IS/IP	263	0	0	0.0	0.0	0	0	263	0	02/01/00	07/25/90		
C-105	NCPLX	SOUND	IS/PI	132	0	20	0.0	0.0	20	0	132	0	02/29/00	08/05/94	08/30/95	
C-106	NCPLX	SOUND	/PI	48	42	0	0.0	0.0	42	9	6	0	10/31/99	08/05/94	08/08/94	
C-107	DC	SOUND	IS/IP	257	0	30	0.0	40.8	30	25	257	0	06/30/99	00/00/00		
C-108	NCPLX	SOUND	IS/IP	66	0	4	0.0	0.0	4	0	66	0	02/24/84	12/05/74	11/17/94	
C-109	NCPLX	SOUND	IS/IP	66	4	4	0.0	0.0	8	4	62	0	11/29/83	01/30/76		
C-110	DC	ASMD LKR	IS/IP	178	1	37	0.0	15.5	38	30	177	0	06/14/95	08/12/86	05/23/95	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	4	0.0	0.0	4	0	57	0	04/28/82	02/25/70	02/02/95	
C-112	NCPLX	SOUND	IS/IP	104	0	6	0.0	0.0	6	1	104	0	09/18/90	09/18/90		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	03/31/82	12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	01/19/79	12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	04/28/82	12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	04/28/82	12/09/86		
16 SINGLE-SHELL TANKS			TOTALS:	1784	126	189	0.0	103.0	315	207	1658	0				
S TANK FARM STATUS																
S-101	NCPLX	SOUND	/PI	427	12	83	0.0	0.0	95	80	211	204	12/31/98	03/18/88		
S-102	DSSF	SOUND	/PI	492	0	93	0.0	56.8	93	89	105	387	05/31/00	03/18/88		(c)
S-103	DSSF	SOUND	IS/PI	237	1	45	0.0	23.9	46	39	9	227	04/30/00	06/01/89	01/28/00	
S-104	NCPLX	ASMD LKR	IS/IP	294	1	34	0.0	0.0	35	31	293	0	12/20/84	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	42	0.0	114.3	42	33	2	454	09/26/88	04/12/89		
S-106	NCPLX	SOUND	IS/PI	455	0	26	0.0	203.6	26	2	0	455	02/28/01	03/17/89	01/28/00	
S-107	NCPLX	SOUND	/PI	376	14	61	0.0	0.0	75	61	293	69	06/30/99	03/12/87		
S-108	NCPLX	SOUND	IS/PI	432	0	0	0.0	199.8	0	0	5	427	10/01/99	03/12/87	12/03/96	
S-109	NCPLX	SOUND	IS/PI	533	0	16	0.0	34.0	16	12	13	520	06/30/01	12/31/98		(d)
S-110	NCPLX	SOUND	IS/PI	390	0	30	0.0	203.1	30	27	131	259	05/14/92	03/12/87	12/11/96	
S-111	NCPLX	SOUND	/PI	501	48	82	0.0	3.3	130	97	116	337	09/30/99	08/10/89		
S-112	NCPLX	SOUND	/PI	523	0	81	0.0	125.1	81	70	6	517	12/31/98	03/24/87		
12 SINGLE-SHELL TANKS			TOTALS:	5116	76	593	0.0	963.9	669	541	1184	3856				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
SX TANK FARM STATUS																
SX-101	DC	SOUND	/PI	429	0	93	0.0	19.2	93	80	0	429	12/31/00	03/10/89		(e)
SX-102	DSSF	SOUND	/PI	514	134	95	0.0	0.0	229	216	0	380	04/30/00	01/07/88		
SX-103	NCPLX	SOUND	/PI	518	0	31	0.0	116.3	31	16	115	403	04/30/01	12/17/87		(f)
SX-104	DSSF	ASMD LKR	IS/PI	446	0	48	0.0	231.3	48	44	136	310	04/30/00	09/08/88	02/04/98	
SX-105	DSSF	SOUND	/PI	484	0	0	0.0	152.6	0	-12	65	419	04/30/01	06/15/88		(g)
SX-106	NCPLX	SOUND	IS/PI	397	0	37	0.0	147.5	37	31	0	397	05/31/99	06/01/89		
SX-107	NCPLX	ASMD LKR	IS/IP	102	0	0	0.0	0.0	0	0	85	17	10/31/00	03/06/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	0	0.0	0.0	0	0	87	0	12/31/93	03/06/87		
SX-109	NCPLX	ASMD LKR	IS/IP	249	0	0	0.0	0.0	0	0	60	189	10/31/00	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	122	0	8	0.0	0.0	8	3	122	0	06/30/99	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	108	0	6	0.0	0.0	6	1	108	0	06/30/99	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	31	0	0	0.0	0.0	0	0	31	0	06/30/99	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	165	0	0	0.0	0.0	0	0	44	121	10/31/00	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS			TOTALS:	3726	134	318	0.0	666.9	452	379	927	2665				
T TANK FARM STATUS																
T-101	NCPLX	ASMD LKR	IS/PI	102	1	20	0.0	25.3	21	16	37	64	06/30/99	04/07/93		
T-102	NCPLX	SOUND	IS/IP	32	13	3	0.0	0.0	16	11	19	0	08/31/84	06/28/89		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	3	0.0	0.0	7	3	23	0	11/29/83	07/03/84		
T-104	NCPLX	SOUND	IS/PI	317	0	31	0.0	149.5	31	27	317	0	12/31/99	06/29/89	10/07/99	
T-105	NCPLX	SOUND	IS/IP	98	0	5	0.0	0.0	5	0	98	0	05/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	2	19	0	04/28/82	06/29/89		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	34	0.0	11.0	34	20	173	0	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	5	0.0	0.0	5	0	21	23	06/30/99	07/17/84		

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
T-109	NCPLX	ASMD LKR	IS/IP	58	0	10	0.0	0.0	10	3	0	58	06/30/99	02/25/93		
T-110	NCPLX	SOUND	IS/PI	369	1	48	0.0	50.3	48	43	368	0	01/31/00	07/12/84	10/07/99	
T-111	NCPLX	ASMD LKR	IS/PI	446	0	38	0.0	9.6	38	35	446	0	04/18/94	04/13/94	02/13/95	
T-112	NCPLX	SOUND	IS/IP	67	7	4	0.0	0.0	11	7	60	0	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	4	0.0	0.0	5	1	28	0	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	3	0.0	0.0	3	0	21	0	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	5	0.0	0.0	5	0	35	0	01/31/78	08/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	5	0.0	0.0	5	0	38	0	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS			TOTALS:	1877	29	218	0.0	245.7	246	168	1703	145				
								TX TANK FARM STATUS								
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	8	0.0	0.0	11	7	74	10	06/30/99	10/24/85		
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	27	0.0	94.4	27	16	0	217	08/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	18	0.0	68.3	18	11	0	157	06/30/99	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	5	9	0.0	3.6	14	9	23	37	06/30/99	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	25	0.0	121.5	25	14	0	609	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	341	0	37	0.0	134.6	37	30	0	341	06/30/99	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	6	0.0	0.0	7	1	8	27	06/30/99	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	8	0.0	13.7	8	1	6	128	06/30/99	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	6	0.0	72.3	6	2	384	0	06/30/99	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	14	0.0	115.1	14	10	37	425	06/30/99	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	10	0.0	98.4	10	6	43	327	06/30/99	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	26	0.0	94.0	26	21	0	649	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	653	0	30	0.0	19.2	30	0	0	653	10/31/00	04/11/83	09/23/94	
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	17	0.0	104.3	17	11	4	531	06/30/99	04/11/83	02/17/95	
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	568	0	25	0.0	99.1	25	15	0	568	06/30/99	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	21	0.0	23.8	21	17	68	563	06/30/99	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	10	0.0	54.3	10	5	29	597	06/30/99	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	286	0	0	0.0	89.1	0	0	21	265	02/01/00	12/19/79		
18 SINGLE-SHELL TANKS			TOTALS:	6810	9	297	0.0	1205.7	306	176	697	6104				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
TY TANK FARM STATUS																
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	2	0.0	8.2	2	0	72	46	06/30/99	08/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	12	0.0	6.6	12	5	0	64	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	20	0.0	11.5	20	16	162	0	07/09/82	08/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	43	0	4	0.0	0.0	4	0	43	0	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	12	0.0	3.6	12	10	231	0	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	21	0	3	0.0	0.0	3	0	21	0	06/30/99	08/22/89		
6 SINGLE-SHELL TANKS			TOTALS:	639	0	53	0.0	29.9	53	31	529	110				
U TANK FARM STATUS																
U-101	NCPLX	ASMD LKR	IS/IP	25	3	3	0.0	0.0	6	2	22	0	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	293	0	21	1.3	81.8	21	11	43	250	06/30/01	06/08/89		(h)
U-103	NCPLX	SOUND	IS/PI	418	1	33	0.0	98.9	34	28	13	404	05/31/00	09/13/88		
U-104	NCPLX	ASMD LKR	IS/IP	122	0	0	0.0	0.0	0	0	79	43	06/30/99	08/10/89		
U-105	NCPLX	SOUND	IS/PI	353	0	44	0.0	87.5	44	32	32	321	03/31/01	07/07/88		
U-106	NCPLX	SOUND	IS/PI	172	2	36	0.0	39.1	38	30	0	170	03/31/01	07/07/88		
U-107	DSSF	SOUND	/PI	408	33	92	0.0	0.0	125	115	15	360	12/31/98	10/27/88		
U-108	NCPLX	SOUND	/PI	468	24	108	0.0	0.0	132	124	29	415	12/31/98	09/12/84		
U-109	NCPLX	SOUND	/PI	392	0	54	3.4	73.1	54	45	35	357	06/30/01	07/07/88		(l)
U-110	NCPLX	ASMD LKR	IS/PI	186	0	18	0.0	0.0	18	14	186	0	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	80	0.0	0.0	80	71	26	303	12/31/98	06/23/88		
U-112	NCPLX	ASMD LKR	IS/IP	49	4	4	0.0	0.0	8	4	45	0	02/10/84	08/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	1	0.0	0.0	2	1	4	0	08/15/79	08/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	1	0.0	0.0	2	1	4	0	08/15/79	08/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	1	2	0	08/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	1	2	0	08/15/79	06/13/89		
16 SINGLE-SHELL TANKS			TOTALS:	3231	71	495	4.7	380.4	566	480	537	2623				
GRAND TOTAL				33260	1351	3399	4.7	5562.8	4750	3844	11059	20850				

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

FOOTNOTES:

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate. The category "Interim Isolated (II)" was changed to Intrusion Prevention (IP) in June 1993.

Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Systems Engineer

Porosity values are 25% for saltcake and 15% for sludge, per HNF-2978, Rev. 1, "Updated Pumpable Liquid Volume Estimates and Jet Pump Durations for Interim Stabilization of Remaining Single-Shell Tanks," September 1999, with the exception of those tanks which have been interim stabilized and the porosities recalculated.

(a) A-101 Following information from Systems Engineer

Pumping began on May 6, 2000. No pumping since August 2000.

(b) AX-101 Following informtion from Systems Engineer

Pumping began July 29, 2000; shutdown in August 2000, and resumed March 22, 2001. Pumping shut down April 3, 2001, due to transfer line failure.
Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 2. No pumping since April 2001.

(c) S-102 Following information from Systems Engineer:

Pumping commenced March 18, 1999. Many pumping problems occurred over the following months, and the pump has been replaced several times. Pumping was interrupted again in June 2000. No pumping since June 2000.

(d) S-109 This tank was declared Interim Stabilized on June 11, 2001.

Total Waste: 533.4 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 15.7 Kgal
Total Pumped: 34.2 Kgal
Drainable Liquid Remaining: 15.7 Kgal
Pumpable Liquid Remaining: 11.5 Kgal
Sludge: 13.0 Kgal
Saltcake: 520.4 Kgal

Note: Previous to Interim Stabilization, Total Pumped was shown as 145.2 Kgal; Stabilization documentation shows 34.2 Kgal.

(e) SX-101 Following information from Systems Engineer:

Pumping began November 22, 2000. No pumping since December 2000.
Remaining volumes are based on HNF-2978, Rev 2.

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

FOOTNOTES:

(f) SX-103 Following information from Systems Engineer:

Pumping began October 26, 2000. All supernate has been removed, evaluating whether pumping will be restarted. No pumping in May 2001.
Remaining volumes are based on HNF-2978, Rev. 2.

Total Waste: 517.7 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 30.7 Kgal
Pumped this month: 0.0 Kgal
Total Pumped: 116.3 Kgal
Drainable Liquid Remaining: 30.7 Kgal
Pumpable Liquid Remaining: 15.7 Kal
Sludge: 115.0 Kgal
Saltcake: 402.7 Kgal

In April 2001, a total of 4,393 gal of fluid was removed and a total of 1,148 gal of water added by pump priming/equipment flushes, for a net removal of 3,245 gal of waste.
In addition, 15,092,319 gal of water were used as dilution and 827 gal of water were used for transfer line flushes. No pumping since April 2001.

(g) SX-105 Following information from Systems Engineer:

Saltwell pumping began August 8, 2000. Pumping ceased in late April 2001 when the saltwell screen in-flow rate was measured at about 0.02 gpm.
Interstitial fluid level is now being allowed to stabilize to determine if the tank can be declared Interim Stabilized. An in-tank video will be taken.
Remaining volumes are based on HNF-2978, Rev. 2.

(h) U-102 Following information from Systems Engineer

Pumping began in this tank on January 20, 2000. Saltcake volume is adjusted to correspond to current waste removal.
Remaining volumes are based on HNF-2978, Rev. 2.

Total Waste: 293.2 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 21.2 Kgal
Pumped this Month: 1.3 Kgal
Total Pumped: 81.8 Kgal
Drainable Liquid Remaining: 21.2 Kgal
Pumpable Liquid Remaining: 11.2 Kgal
Sludge: 43.0 Kgal
Saltcake: 250.2 Kgal

During June 2001, a total of 1,481 gal of fluid was removed and 220 gal of water added by pump priming/equipment flushes, for a net removal of 1,261 gal of waste.
In addition, 15,092 gal of water were used as dilution and 1,624 gal of water were used for transfer line flushes.

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

June 30, 2001

These volumes are the result of engineering calculations and may not agree with surface level measurements

FOOTNOTES:

(i) U-109 Following information from Systems Engineer

Pumping began March 11, 2000. Saltcake volume is adjusted to correspond to current waste removal. Remaining volumes based on HNF-2978, Rev. 2.
Pumping was shut down on December 3, 2000, due to jet pump failure. Attempts to restart the pump have been unsuccessful; the pump was replaced and restarted March 30, 2001.

Tank Waste: 391.9 Kgal
Supernate: 0.0 Kgal
Drainable Interstial Liquid: 53.9 Kgal
Pumped this month: 3.4 Kgal
Total Pumped: 73.1 Kgal
Drainable Liquid Remaining: 53.9 Kgal
Pumpable Liquid Remaining: 44.9 Kgal
Sludge: 35.0 Kgal
Saltcake: 356.9 Kgal

During June 2001, a total of 3,663 gal of fluid was removed and a total of 243 gal of water was added for pump priming/equipment flushes for a net removal of 3,420 gal of waste. In addition, 10,635 gal of water were used as dilution and 297 gal were used for transfer line flushes.

APPENDIX B

WASTE TANK SURVEILLANCE MONITORING TABLES

TABLE B-1. TEMPERATURE MONITORING IN WATCH LIST TANKS

June 30, 2001

These tanks have been identified as Watch List tanks because they are suspected of having the potential for hydrogen/flammable gas release, and are reviewed for increasing temperature trends. They are monitored by the Tank Monitor and Control System (TMACS). There were no increasing temperature trends for this month.

It is expected these 24 tanks will be removed from the Hydrogen Watch List no later than September 30, 2001.

Single-Shell Tanks (19 Tanks)			Double-Shell Tanks (5 Tanks)
Tank No.			Tank No.
A-101	SX-101	SX-109	AN-103
AX-101	SX-102	T-110	AN-104
AX-103	SX-103	U-103	AN-105
S-102	SX-104	U-105	AW-101
S-111	SX-105	U-107	SY-103
S-112	SX-106	U-108	
		U-109	

Notes:

Unreviewed Safety Question (USQ):
When a USQ is declared, special controls are required, and work in the tanks is limited. There are currently no USQs on any single-shell or double-shell tanks.

Hydrogen/Flammable Gas:
These tanks are suspected of having a potential for hydrogen/flammable gas generation, entrapment, and episodic release. The USQ associated with these tanks was closed in September 1998. Twenty-four tanks (19 SST and 5 DST) remain on the Hydrogen Watch List.

High Heat:
These tanks contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling. There are currently nine tanks on the High Heat Load List but no tanks on the High Heat Load Watch List.

Active ventilation:
There are 15 single-shell tanks on active ventilation (seven are on the Hydrogen Watch List as indicated by an asterisk):

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

Tank SX-109 is on the Hydrogen Watch List since it has the potential for flammable gas accumulation because other SX tanks vent through it.

TABLE B-2. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS
June 30, 2001

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>26,000 Btu/hr)

Nine tanks have high heat loads for which temperature surveillance requirements have been established. In an analysis, WHC-SD-WM-SARR-010, Rev. 1, *Heat Removal Characteristics of Waste Storage Tanks,* Kummerer, 1995, as amended, it was estimated that these nine tanks have heat sources >26,000 Btu/hr, which is the new parameter for determining high heat load tanks.

Temperatures in these tanks did not exceed the Technical Safety Requirements (TSR) for this month. The tanks are monitored by the Tank Monitor and Control System (TMACS). All high heat load tanks are on active ventilation.

Tank No.		
C-106 (1)	SX-108	SX-111
SX-103	SX-109 (2)	SX-112
SX-107	SX-110	SX-114

(1) Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999. The final thermal analysis report was issued August 9, 2000, and concluded that the best estimate for C-106 was between 7,000 and 11,000 Btu/hr; it no longer meets the criteria for a high heat load tank. An AB Amendment is required to revise the temperature control limits and monitoring frequency. **The AB Amendment request is on temporary hold by ORP and is expected to be approved in July 2001.**

(2) Tank SX-109 is on the Hydrogen Watch List since it has the potential for flammable gas accumulation because the other SX tanks vent through it.

SINGLE-SHELL TANKS WITH LOW HEAT LOADS (<26,000Btu/hr)

There are 114 low heat load non-Watch List tanks. Temperatures in tanks connected to TMACS are monitored by TMACS; temperatures in those tanks not yet connected to TMACS are manually taken semiannually in January and July. These temperatures have been within historical ranges for the applicable tank.

No temperatures have been obtained for several years in the 13 tanks listed below. Most of these tanks have no thermocouple trees.

Tank No.		
BY-104	SX-115	TX-110
BY-102	T-102	TX-114
BY-109	T-105	TX-116
C-104	TX-101	TX-117
		U-104

TABLE B-3. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR
June 30, 2001

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table D-1).

	Ferrocyanide	Hydrogen	Organics	High Heat	Total Tanks SST	DST	Total
1/91 Original List -Response to Public Law 101-5	23	23	8	1	47	5	52
Added 2/91 (revision to Original List)	1 T-107				1		1
Total - December 31, 1991	24	23	8	1	48	5	53
Added 8/92		1 AW-101				1	1
Total - December 31, 1992	24	24	8	1	48	6	54
Added 3/93			1 U-111		1		
Deleted 7/93	-4 (BX-110) (BX-111) (BY-101) (T-101)				-4		
Added 12/93		1 (U-107)			0		
Total - December 31, 1993	20	25	9	1	45	6	51
Added 2/94			1 T-111		1		
Added 5/94			10 A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		4		
Deleted 11/94	-2 (BX-102) (BX-106)				-2		
Total - December 31, 1995	18	25	20	1	48	6	54
Deleted 6/96	-4 (C-108) (C-109) (C-111) (C-112)				-4		
Deleted 9/96	-14 (BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)				-12		
Deleted 12/98			-18 (A-101) (AX-102) (B-103) (S-102) (S-111) (SX-103) (SX-106) (T-111) (TX-105) (TX-118) (TY-104) (U-103) (U-105) (U-106) (U-107) (U-111) (U-203) (U-204)		-10		
Total - December 31, 1998	0	25	2	1	22	6	28
Deleted 12/99				-1 (C-106)	-1		
Deleted 08/00			-1 (C-102)		-1		
			-1 (C-103)		-1		
Deleted 01/01		-1 (SY-101)				-1	
Total - June 30, 2001	0	24	0	0	19	5	24

TABLE B-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 3)

June 30, 2001

There are no Single-Shell Tanks Out of Compliance (O/C) for this month.

LEGEND:	
O/C	= Noncompliance with applicable documentation
O/S	= Out of Service
N/A	= Not applicable (not monitored, no schedule)
None	= Applicable equipment not installed
LOW	= LOW readings taken by Neutron probe (exception: AX-101 taken by gamma sensors)
POP	= Plant Operating Procedure, TO-040-650
MT/FIC/ ENRAF	= Surface level measurement devices
OSD	= Operating Spec. Doc., OSD-T-151-00013, 00030, 00031
FSAR/TSR	= Final Safety Analysis Report/Technical Safety Requirements

All Watch List and High heat tank temperature monitoring is in compliance (3).
All Dome Elevation Surveny monitoring is in compliance.
Psychrometrics monitoring is on an "as needed" basis (2).
In-tank photos/videos are taken on an "as needed" basis.
Drywell monitoring is no longer required (4)

The following table indicates Single-Shell tank monitoring devices which were Out Of Service (O/S) as of the last day of this month.

Tank Number	Tank Category		Temperature Readings (3)	Primary Leak Detection Source (4)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(4,6)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
B-110				LOW	None	None	(O/S) (9)	
BY-109			None	LOW	None	O/S (10)	None	
SX-105	X		N/A	LOW	None	None		O/S (7)
Catch Tanks and Special Surveillance Facilities (5)								
AX-152			N/A	(8)		None	None	None

TABLE B-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS -149 TANKS
(Sheet 2 of 3)

Footnotes:

1. All SSTs have either manual tape, FIC, or ENRAF surface level measuring devices. Some also have zip cords.

   ENRAF gauges are being installed to replace FICs (or sometimes manual tapes). The ENRAF gauges are being connected to TMACS, but many are currently being read manually from the field. See Table B-6 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks. Psychrometric readings are not required by OSD, but can be taken on an "as needed" basis.

   Psychrometric readings are taken annually in SX-farm.

3. Temperature readings may be regulated by OSD, POP, or FSAR (FSAR only regulates high heat load tanks). Temperatures cannot be obtained in 13 low heat load tanks (see Table B-2). The OSD does not require readings or repair of out-of-service thermocouples for the low heat load (≤26,000 Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

   Temperatures in some tanks cannot be taken in the waste because the waste level is lower than the lowest thermocouple in these trees. Some tanks have no temperature trees.

   Temperatures for many tanks are monitored continuously by TMACS; see Table B-7, TMACS Monitoring Status.

4. Document OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," Rev. D-2, December 7, 2000, requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection until an LOW is installed. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

   This OSD revision does not require drywell surveys to be taken; drywell scans will only be taken by special request, since any scans would have to be subcontracted. The contractor no longer has drywell scanning equipment.

5. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or Catch tank 241-S-302 is monitored for intrusions only, and is not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

   Weight Factor is the surface level measuring device currently used in A-417, A-350, 244-A Tank/Sump, and 244-S Tank/Sump. Double-Shell Receiver Tank (DCRT) CR-003 is inactive and measured in gallons. 204-AR is also measured in gallons.

6. Document SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet, which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

TABLE B-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 3 of 3)

Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-203	T-109
AX-102	BX-106	C-204	TX-107
AX-104	BX-108	SX-110	TY-102
B-102	C-108	SX-113	TY-104
B-103	C-109	SX-115	TY-106
B-112	C-111	T-102	U-101
		T-103	U-112

Total - 34 Tanks

7. Tank SX-105 - LOW scan not taken for week ending August 28, 2000. LOW is primary leak detection device; ENRAF is backup and monitored daily in TMACS. LOW has failed structurally, and will be replaced. Work Package 2H0005040. Fabrication shop has finished making the LOW. Waiting for schedule of installation. (Tank is currently being saltwell pumped). **Weight Factor and Specific Gravity readings are taken weekly.**

8. Catch Tank AX-152 - has been declared an "assumed leaker," per Occurrence Report RP-CHG-TANKFARM-2001-0014, based on an engineering evaluation. The remaining liquid (water which was being used to perform a leak test of the catch tank) has been pumped to a double-shell tank.

9. Tank B-110 ENRAF was damaged during installation of the LOW in February 2001. An Instrument Technician is working to repair this. LOW is primary device and good weekly readings are being obtained.

10. Tank BY-109 FIC has been showing suspect readings since 1998. LOW is primary device and good readings are being obtained.

TABLE B-5. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS

28 TANKS (Sheet 1 of 2)

June 30, 2001

There are no Double-Shell Tanks Out of Compliance (O/C) for this month.

NOTE:

Dome Elevation Surveys are not required for DSTs.

Psychrometrics and in-tank photos/videos are taken "as needed" (2)

LEGEND:	
O/C	= Noncompliance with applicable documentation
O/S	= Out of Service
FIC/ENRAF M.T.	= Surface level measurement devices
OSD	= OSD-T-151-0007, OSD-T-151-00031
None	= no M.T., FIC or ENRAF installed
W.F.	= Weight Factor
N/A	= Not Applicable (not monitored or no monitoring schedule)
Rad.	= Radiation

The following table indicates Double-Shell Monitoring devices which were Out of Service as of the last day of this month.

Tank Number	Watch List	Temperature Readings (3) (OSD)	Surface Level Readings (1) (OSD)			Radiation Readings		
						Leak Detection Pits (4) (OSD)		Annulus (OSD)
			M.T.	FIC	ENRAF	W.F.	Rad. (6)	
AN-101				None			N/A	O/S (10)
AN-102				None			N/A	O/S (10)
AN-103	X			None			N/A	O/S (10)
AN-104	X		O/S	None			N/A	O/S (10)
AN-105	X		O/S	None			N/A	O/S (10)
AN-106				None			N/A	O/S (10)
AN-107				None		O/S	N/A	O/S (10)
AP-101			O/S	None		O/S (7)	N/A	
AP-102				None		O/S (7)	N/A	
AP-103				None		O/S (7)	N/A	
AP-104			O/S	None		O/S (7)	N/A	
AP-105				None		O/S (7)	N/A	
AP-106				None		O/S (7)	N/A	
AP-107				None		O/S (7)	N/A	
AP-108				None		O/S (7)	N/A	
AW-101	X		O/S	None			N/A	
AW-102					(5)		N/A	
AW-103				None			N/A	
AW-104				None			N/A	
AW-105				None			N/A	
AW-106				None			N/A	
AY-101				None			N/A	O/S (11)
AY-102			O/S	None			N/A	O/S (11)
AZ-101				None			N/A	O/S
AZ-102					None		N/A	O/S
SY-101			None	None		O/S (9)	N/A	
SY-102			O/S (8)	None			N/A	
SY-103	X		O/S (8)	None		O/S (9)	N/A	

TABLE B-5. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 28 TANKS
(Sheet 2 of 2)

Footnotes:

1. Some double-shell tanks have both FIC and manual tape which is used when the FIC is out of service. Noncompliance (N/C) will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs. The ENRAF gauges are being connected to TMACS, but some are currently being read manually.

2. Psychrometric readings are taken on an "as needed" basis. No psychrometric readings are currently being taken in the double-shell tanks.

3. OSD specifies double-shell tank temperature limits, gradients, etc.

4. Applicable OSD and HNF-IP-0842, latest revisions, are used as guidelines for monitoring Leak Detection Pits. See also (6) and (7) below.

5. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.

6. USQ TF-97-0038, dated April 28, 1997, specifies discontinuing the use of leak detection pit radiation monitoring equipment in all double-shell tank farms where the leak detection pits are used as tertiary leak detection. This applies to all double-shell tank farms.

7. Leak Detection Pit weekly readings are being obtained by Instrument Technicians in these tanks:
   AP-103C (for tanks AP-101 - 104)
   AP-105C (for tanks AP-105 - 108)

8. SY-102 - Manual Tape has sporadic readings. ENRAF is primary device.
   SY-103 - Manual Tape has sporadic readings. ENRAF is primary device.

9. SY-101 - LDP readings are above normal range. EDL #S0007 to repair it.
   SY-103 - LDP readings are above normal range. EDL #241-SY-95-5 to repair it.

10. Tank Farm AN – K-2 exhauster is shut down.

11. Tanks AY-101 and 102 – New return line to be installed.

TABLE B-6. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND DATA INPUT METHODS

June 30, 2001

LEGEND

SACS = Surveillance Analysis Computer System
TMACS = Tank Monitor and Control System
Auto = Automatically entered into TMACS and electronically transmitted to SACS
Manual = Manually entered directly into SACS by surveillance personnel, from Field Data sheets

EAST AREA

Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Auto	B-201	07/00	Auto
A-102			B-202	07/00	Auto
A-103	07/96	Auto	B-203	06/00	Auto
A-104	05/96	Manual	B-204	06/00	Auto
A-105			BX-101	04/96	Auto
A-106	01/96	Auto	BX-102	06/96	Auto
AN-101	08/96	Auto	BX-103	04/96	Auto
AN-102	05/00	Auto	BX-104	05/96	Auto
AN-103	08/95	Auto	BX-105	03/96	Auto
AN-104	08/95	Auto	BX-106	07/94	Auto
AN-105	08/95	Auto	BX-107	06/96	Auto
AN-106	05/00	Auto	BX-108	05/96	Auto
AN-107	04/00	Auto	BX-109	08/95	Auto
AP-101	06/99	Auto	BX-110	06/96	Auto
AP-102	08/99	Auto	BX-111	05/96	Auto
AP-103	08/99	Auto	BX-112	03/96	Auto
AP-104	07/99	Auto	BY-101		
AP-105	08/99	Auto	BY-102	09/99	Auto
AP-106	08/99	Auto	BY-103	12/96	Auto
AP-107	08/99	Auto	BY-104		
AP-108	08/99	Auto	BY-105		
AW-101	08/95	Auto	BY-106		
AW-102	05/96	Auto	BY-107		
AW-103	05/96	Auto	BY-108		
AW-104	01/96	Auto	BY-109		
AW-105	06/96	Auto	BY-110	02/97	Manual
AW-106	06/96	Auto	BY-111	02/99	Manual
AX-101	09/95	Auto	BY-112		
AX-102	09/98	Auto	C-101		
AX-103	09/95	Auto	C-102		
AX-104	10/96	Auto	C-103	08/94	Auto
AY-101	03/96	Auto	C-104	04/99	Manual
AY-102	01/98	Auto	C-105	05/96	Manual
AZ-101	08/96	Manual	C-106	02/96	Auto
AZ-102	11/00	Manual	C-107	04/95	Auto
B-101	07/00	Auto	C-108		
B-102	02/95	Auto	C-109		
B-103	07/00	Auto	C-110		
B-104	06/00	Auto	C-111		
B-105	08/00	Auto	C-112	03/96	Manual
B-106	07/00	Auto	C-201		
B-107	06/00	Auto	C-202		
B-108	07/00	Auto	C-203		
B-109	08/00	Auto	C-204		
B-110	07/00	Auto			
B-111	07/00	Auto			
B-112	03/95	Auto			

Total East Area: 71

WEST AREA

Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
S-101	02/95	Auto	TX-101	11/95	Auto
S-102	05/95	Auto	TX-102	05/96	Auto
S-103	05/94	Auto	TX-103	12/95	Auto
S-104	05/99	Auto	TX-104	03/96	Auto
S-105	07/95	Auto	TX-105	04/96	Auto
S-106	06/94	Auto	TX-106	04/96	Auto
S-107	06/94	Auto	TX-107	04/96	Auto
S-108	07/95	Auto	TX-108	04/96	Auto
S-109	08/95	Auto	TX-109	11/95	Auto
S-110	08/95	Auto	TX-110	05/96	Auto
S-111	08/94	Auto	TX-111	05/96	Auto
S-112	05/95	Auto	TX-112	05/96	Auto
SX-101	04/95	Auto	TX-113	05/96	Auto
SX-102	04/95	Auto	TX-114	05/96	Auto
SX-103	04/95	Auto	TX-115	05/96	Auto
SX-104	05/95	Auto	TX-116	05/96	Auto
SX-105	05/95	Auto	TX-117	06/96	Auto
SX-106	08/94	Auto	TX-118	03/96	Auto
SX-107	09/99	Auto	TY-101	07/95	Auto
SX-108	09/99	Auto	TY-102	09/95	Auto
SX-109	09/98	Auto	TY-103	09/95	Auto
SX-110	09/99	Auto	TY-104	06/95	Auto
SX-111	09/99	Auto	TY-105	12/95	Auto
SX-112	09/99	Auto	TY-106	12/95	Auto
SX-113	09/99	Auto	U-101		
SX-114	09/99	Auto	U-102	01/96	Manual
SX-115	09/99	Manual	U-103	07/94	Auto
SY-101	07/94	Auto	U-104		
SY-102	06/94	Auto	U-105	07/94	Auto
SY-103	07/94	Auto	U-106	08/94	Auto
T-101	05/95	Manual	U-107	08/94	Auto
T-102	06/94	Auto	U-108	05/95	Auto
T-103	07/95	Manual	U-109	07/94	Auto
T-104	12/95	Manual	U-110	01/96	Manual
T-105	07/95	Manual	U-111	01/96	Manual
T-106	07/95	Manual	U-112		
T-107	06/94	Auto	U-201		
T-108	10/95	Manual	U-202		
T-109	09/94	Manual	U-203	09/98	Manual
T-110	05/95	Auto	U-204	06/98	Manual
T-111	07/95	Manual			
T-112	09/95	Manual			
T-201					
T-202					
T-203					
T-204					

Total West Area: 77

148 ENRAFs installed: 125 automatically entered into TMACS, 23 manually entered into SACS

TABLE B-7. TANK MONITOR AND CONTROL SYSTEM (TMACS)

June 30, 2001

Note: Indicated below are the number of tanks having at least one operating sensor monitored by TMACS.

Some tanks have more than one sensor: multiple sensors of the same type in a tank are not shown in the table (for example: 10 tanks in BY-Farm have at least one operating TC sensor and 3 tanks in BY-Farm have at least one operating RTD sensor).

Acceptance Testing Completed: Sensors Automatically Monitored by TMACS

EAST AREA Tank Farm	Temperatures Thermocouple Tree (TC)	Temperatures Resistance Thermal Device (RTD)	ENRAF Level Gauge	Pressure (b)	Hydrogen (c)	Gas Sample Flow
A-Farm (6 Tanks)	1		3		1	1
AN-Farm (7 Tanks)	7		7	7	3	3
AP-Farm (8 Tanks)			8			
AW-Farm (6 Tanks)	6		6		1	1
AX-Farm (4 Tanks)	3		4		1	
AY-Farm (2 Tanks)			2			
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)	1		16			
BX-Farm (12 Tanks)	11		12			
BY-Farm (12 Tanks)	10	3	2			
C-Farm (16 Tanks)	15	1	3	1		
TOTAL EAST AREA (91 Tanks)	54	4	63	8	6	5
WEST AREA						
S-Farm (12 Tanks)	12		12	1	3	1 (e)
SX-Farm (15 Tanks)	14		14	1	7	5 (e)
SY-Farm (3 Tanks) (a)	3		3	1	2	2
T-Farm (16 Tanks)	14	1	3 (d)		1	(e)
TX-Farm (18 Tanks)	13		18			
TY-Farm (6 Tanks)	6	3	6			
U-Farm (16 Tanks)	15		6	4	6	6
TOTAL WEST AREA (86 Tanks)	77	4	62	7	19	19
TOTALS (177 Tanks)	131	8	125	15	25	24

(a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors, and 2 ENRAFs.
(b) Each tank has two sensors (high and low range).
(c) Each tank has two sensors (high and low range).
(d) T-107 - Auto ENRAF O/S, manual readings taken daily
(e) S, SX, and T-Farms - five gas sample flow sensors have been unhooked or removed. Will eventually use SHMS equipment on other tanks but none scheduled yet.

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APPENDIX C

MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

TABLE C-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

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

June 30, 2001

FACILITY	LOCATION	PURPOSE (receives waste from:)	(Gallons)	MONITORED BY	REMARKS
EAST AREA					
241-A-302-A	A Farm	A-151 DB	670	SACS/ENRAF/Manually	Pumped to AW-105 7/00
241-ER-311	B Plant	ER-151, ER-152 DB	9217	SACS/ENRAF/Manually	
241-AZ-151	AZ Farm	AZ-702 condensate	7607	SACS/ENRAF/TMACS	Volume changes daily - pumped to AZ-101 or AZ-102 as needed. Pumped 5/31/01 to AZ-101.
241-AZ-154	AZ Farm		25	SACS/MT	
244-BX-TK/SMP	BX Complex	DCRT - Receives from several farms	19206	SACS/MT	Using Manual Tape for tank/sump, pumped 10/16/99 to 66.0 in. Sump O/S 2/5/01
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	7185	MCS/SACS/WTF	WTF- pumped 3/99 to AP-108
A-350	A Farm	Collects drainage	384	MCS/SACS/WTF	WTF (uncorrected) pumped as needed
AR-204	AY Farm	Tanker trucks from various facilities	275	DIP TUBE	Alarms on SACS-pumped to AP-108, 7/00
A-417	A Farm		13814	SACS/WTF	Pumped 4/98; WTF O/S 6/01; readings taken with zip cord (accuracy suspect)
CR-003-TK/SUMP	C Farm	DCRT	2984	MT/ZIP CORD	Zip cord in sump O/S, 3/96; water intrusion, 1/98
WEST AREA					
241-TX-302-C	TX Farm	TX-154 DB	157	SACS/ENRAF/Manually	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	8016	SACS/ENRAF/Manually	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	3341	SACS/ENRAF/Manually	
241-S-304	S Farm	S-151 DB	130	SACS/ENRAF/Manually	Replaced S-302-A, 10/91; ENRAF installed 7/98 Sump not alarming.
244-S-TK/SMP	S Farm	From original tanks to SY-102	26401	SACS/Manually	WTF (uncorrected); transferred from S-219, 6/01
244-TX-TK/SMP	TX Farm	From original tanks to SY-102	16742	SACS/Manually	MT - pumped PFP 241-Z tank D-5 to 244-TX DCRT on 4/12/01, level now 76"
Vent Station Catch Tank		Cross Country Transfer Line	374	SACS/Manually	MT

Total Active Facilities	17

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- FIC - Food Instrument Corporation measurement device
- MT - Manual Tape
- Zip Cord - surface level measurement device
- WTF - Weight Time Factor - can be recorded as WTF, CWF (corrected), and Uncorrected WTF
- SACS - Surveillance Automated Control System
- MCS - Monitor and Control System
- Manually - Not connected to any automated system
- O/S - Out of Service
- ENRAF - Surface Level Measuring Device

TABLE C-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

June 30, 2001

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5759	SACS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990, Rain intrusion
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-AX-152	AX Farm	AX-152 DB	0	SACS/MT	Declared Assumed Leaker; pumped to AY-102 3/1/01, no longer being used
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	650	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

Total East Area inactive facilities 19

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- MT - Manual Tape
- SACS - Surveillance Automated Control System
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- NM - Not Monitored

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

TABLE C-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

June 30, 2001

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
241-S-302	S Farm	240-S-151 DB	8359	SACS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB	0		Assumed Leaker TF-EFS-90-042
	Partially filled with grout 2/91, determined still assumed leaker after leak test. Manual FIC readings are unobtainable due to dry grouted surface. CASS monitoring system retired 2/23/99; intrusion readings discontinued. S-304 replaced S-302-A				
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1600	SACS/MT	New MT installed 7/16/93
241-TX-302-B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
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 Stabilzed, MT removed 1984 (1)

Total West Area inactive facilities 27

LEGEND:
- DB - Diversion Box, TB - Transfer Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- FIC - Surface Level Monitoring Device
- MT - Manual Tape
- O/S - Out of Service
- SACS - Surveillance Automated Control System
- NM - Not Monitored
- ENRAF - Surface Level Monitoring Device

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

APPENDIX D

LEAK VOLUME ESTIMATES

TABLE D-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 6)

June 30, 2001

Tank Number	Date Declared Confirmed or Assumed Leaker (3)	Volume Gallons (2)	Associated KiloCuries 137 Cs (9)	Interim Stabilized Date (11)	Leak Estimate Updated	Leak Estimate Reference
241-A-103	1987	5500 (8)		06/88	1987	(j)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a)(q)
241-A-105 (1)	1963	10000 to 277000	85 to 760 (b)	07/79	1991	(b)(c)
241-AX-102	1988	3000 (8)		09/88	1989	(h)
241-AX-104	1977	-- (6)		08/81	1989	(g)
241-B-101	1974	-- (6)		03/81	1989	(g)
241-B-103	1978	-- (6)		02/85	1989	(g)
241-B-105	1978	-- (6)		12/84	1989	(g)
241-B-107	1980	8000 (8)		03/85	1986	(d)(f)
241-B-110	1981	10000 (8)		03/85	1986	(d)
241-B-111	1978	-- (6)		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200 (8)		08/81	1984	(e)(f)
241-B-203	1983	300 (8)		06/84	1986	(d)
241-B-204	1984	400 (8)		06/84	1989	(g)
241-BX-101	1972	-- (6)		09/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	07/79	1986	(d)
241-BX-110	1976	-- (6)		08/85	1989	(g)
241-BX-111	1984 (13)	-- (6)		03/95	1993	(g)
241-BY-103	1973	<5000		11/97	1983	(a)
241-BY-105	1984	-- (6)		N/A	1989	(g)
241-BY-106	1984	-- (6)		N/A	1989	(g)
241-BY-107	1984	15100 (8)		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000 (8)(10)		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1968	5500 (8)		03/84	1989	(g)
241-C-201 (4)	1988	550		03/82	1987	(i)
241-C-202 (4)	1988	450		08/81	1987	(i)
241-C-203	1984	400 (8)		03/82	1986	(d)
241-C-204 (4)	1988	350		09/82	1987	(i)
241-S-104	1968	24000 (8)		12/84	1989	(g)
241-SX-104	1988	6000 (8)		04/00	1988	(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108 (5)(14)	1962	2400 to 35000	17 to 140 (m)(q)(t)	08/79	1991	(m)(q)(t)
241-SX-109 (5)(14)	1965	<10000	<40 (n)(t)	05/81	1992	(n)(t)
241-SX-110	1976	5500 (8)		08/79	1989	(g)
241-SX-111 (14)	1974	500 to 2000	0.6 to 2.4 (l)(q)(t)	07/79	1986	(d)(q)(t)
241-SX-112 (14)	1969	30000	40 (l)(t)	07/79	1986	(d)(t)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	-- (6)		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500 (8)		04/93	1992	(p)
241-T-103	1974	<1000 (8)		11/83	1989	(g)
241-T-106	1973	115000 (8)	40 (l)	08/81	1986	(d)
241-T-107	1984	-- (6)		05/96	1989	(g)
241-T-108	1974	<1000 (8)		11/78	1980	(f)
241-T-109	1974	<1000 (8)		12/84	1989	(g)
241-T-111	1979, 1994 (12)	<1000 (8)		02/95	1994	(f)(r)
241-TX-105	1977	-- (6)		04/83	1989	(g)
241-TX-107 (5)	1984	2500		10/79	1986	(d)
241-TX-110	1977	-- (6)		04/83	1989	(g)
241-TX-113	1974	-- (6)		04/83	1989	(g)
241-TX-114	1974	-- (6)		04/83	1989	(g)
241-TX-115	1977	-- (6)		09/83	1989	(g)
241-TX-116	1977	-- (6)		04/83	1989	(g)
241-TX-117	1977	-- (6)		03/83	1989	(g)
241-TY-101	1973	<1000 (8)		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	02/83	1986	(d)
241-TY-104	1981	1400 (8)		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	02/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
241-U-110	1975	5000 to 8100 (8)	0.05 (q)	12/84	1986	(d)(q)
241-U-112	1980	8500 (8)		09/79	1986	(d)
67 Tanks		<750,000 - 1,050,000 (7)				

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

TABLE D-1. SINGLE-SHELL LEAK VOLUME ESTIMATES

(Sheet 2 of 6)

Footnotes:

(1) Current estimates [see reference(b)] are that 610 Kgallons of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with Dangerous Waste Regulations [Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington], any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated in accordance 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 Kgallons to 277 Kgallons) is based on the following (see References):

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

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

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

4. Reference (c) contains an estimate the 378 to 410 Kgallons 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 Kgallons of cooling water leakage from November 1970 to December 1978.

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

(2) These leak volume estimates do not include (with some exceptions), such things as: (a) cooling/raw water leaks, (b) intrusions (rain infiltration) and subsequent leaks, (c) leaks inside the tank farm but 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. For example, reference (d) shows that Tank 241-U-104 was suspected of leaking in 1956. The leak was "confirmed" in 1961. This report lists the "assumed leaker" date of 1961. Using present standards, Tank 241-U-104 would have been declared an assumed leaker in 1956. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline" and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked. It is highly likely that there have been undetected leaks from single-shell tanks because of the nature of their design and instrumentation.

TABLE D-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 3 of 6)

(4) 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.

(5) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicating continuing leak or movement of existing radionuclides in the soil. There is no conclusive way to confirm these observations.

(6) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (9). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgallons (rounded to the nearest Kgallons), for an average of approximately 8 Kgallons for each of 19 tanks.

(7) The total has been rounded to the nearest 50 Kgallons. Upper bound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.

(8) 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.

(9) The curie content shown is as listed in the reference document and is not decayed to a consistent date: therefore, a cumulative total is inappropriate.

(10) Tank 241-C-101 experienced a liquid level decrease in the late 1960s and was taken out of service and pumped to a "minimum heel" in December 1969. In 1970, the tank was classified as a "questionable integrity" tank. Liquid level data show decreases in level throughout the 1970s and the tank was saltwell pumped during the 1970s, ending in April 1979. The tank was reclassified as a "confirmed leaker" in January 1980. See references (q) and (r); refer to reference (s) for information on the potential for there to have been leaks from other C-farm tanks (specifically, C-102, C-103, and C-109).

(11) These dates indicate when the tanks were declared to be interim stabilized. In some cases, the official interim stabilization documents were issued at a later date. Also, in some cases, the field work associated with interim stabilization was completed at an earlier date.

(12) Tank T-111 was declared an assumed re-leaker on February 28, 1994, due to a decreasing trend in surface level measurement. This tank was pumped, and interim stabilization completed on February 22, 1995.

(13) Tank BX-111 was declared an assumed re-leaker in April 1993. Preparations for pumping were delayed, following an administrative hold placed on all tank farm operations in August 1993. Pumping resumed and the tank was declared interim stabilized on March 15, 1995.

(14) The leak volume and curie release estimates on SX-108, SX-109, SX-111, and SX-112 have been re-evaluated using a Historical Leak Model [see reference (t)]. In general, the model estimates are much higher than the values listed in the table, both for volume and curies released. The values listed in the table do not reflect this revised estimate because, "In particular, it is worth emphasizing that this report was never meant to be a definitive update for the leak baseline at the Hanford Site. It was rather meant to be an attempt to view the issue of leak inventories with a new and different methodology." (This quote is from the first page of the referenced report).

(15) In July 1998, the Washington State Department of Ecology (Ecology) directed the U. S. Department of Energy (DOE) to develop corrective action plans for eight single-shell tank farms (B/BX/BY/S/SX/T/TX/TY) where groundwater contamination likely originated from tank farm operations. A Tri-Party Agreement milestone (M-45 series) was developed that established a formalized approach for evaluating impacts on groundwater quality of losses of tank wastes to the vadose zone underlying these tank farms. Planning documents have been

TABLE D-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 4 of 6)

completed for the S, SX, B, BX, and BY tank farms and will be completed shortly for the T, TX, and TY farms. The phase 1 field investigation is near completion in the S and SX tank farms and has begun in the B, BX, and BY farms. Field work is anticipated in FY-02 for the T, TX, and TY tank farms. The remaining four single-shell tank farms are expected to be included in corrective action plans in the near future.

All of the information included in this appendix is currently under review and significant revisions are anticipated. Recently, major tank farm vadose zone investigation efforts (such as the baseline spectral gamma-ray logging of all drywells in all single-shell tank farms, as well as drilling and sampling in the SX tank farm) were completed. This appendix will be revised as a better understanding of past tank leak events is developed.

SST Vadose Zone Project drilling and testing activities near tank BX-102 were completed March 2001. A borehole (299-E33-45) was drilled through the postulated uranium plume resulting from the 1951 tank BX-102 overfill event to confirm the presence of uranium, define its present depth, and survey other contaminants of interest such as Tc-99. Thirty-five split-spoon samples were collected for laboratory analyses. This borehole was decommissioned after collection and analysis of groundwater samples.

TABLE D-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 5 of 6)

References:

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

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

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

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

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

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

(g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, 8901832B R1, Westinghouse Hanford Company, Richland, Washington.

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

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

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

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

(l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.

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

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

(o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.

TABLE D-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 6 of 6)

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

(q) WHC,1990b, *A History of the 200 Area Tank Farms*, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.

(r) WHC, 1993a, *Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106, WHC-SD-EN-TI-185,* REV OA, Westinghouse Hanford Company, Richland, Washington.

(s) WHC, 1994, Occurrence Report, *Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker*, RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.

(t) HNF, 1998, Agnew, S. F. and R. A. Corbin, August 1998, *Analysis of SX Farm Leak Histories - Historical Leak Model,* (HLM), HNF-3233, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico

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APPENDIX E

SINGLE-SHELL TANKS INTERIM STABILIZATION, AND CONTROLLED, CLEAN AND STABLE (CCS) STATUS

TABLE E -1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 3)

June 30, 2001

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	09/95	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	01/00 (5)	JET
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/95	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/95	AR	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/95	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	05/95	JET	TX-101	SOUND	02/84	AR
B-101	ASMD IKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	08/83	JET
B-103	ASMD IKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD IKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	04/00	JET (6)	TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	02/01	JET (10)	TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR(2)	S-108	SOUND	12/96	JET	TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	06/01	JET (13)	TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	01/97	JET	TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/95	SN	SX-104	ASMD LKR	04/00	JET (7)	TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	05/00	JET (8)	U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/85	SN	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	09/00	JET (9)
BX-111	ASMD LKR	03/95	JET	SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	03/01	JET (11)
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	03/01	JET (12)
BY-102	SOUND	04/95	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	11/97	JET	SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/81	AR(2)(3)	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/78	AR
BY-109	SOUND	07/97	JET	T-104	SOUND	11/99 (4)	JET	U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	05/96	JET				

LEGEND:
- AR = Administratively interim stabilized
- JET = Saltwell jet pumped to remove drainable interstitial liquid
- SN = Supernate pumped (Non-Jet pumped)
- N/A = Not yet interim stabilized
- ASMD LKR = Assumed Leaker

Interim Stabilized Tanks	129
Not Yet Interim Stabilized	20
Total Single-Shell Tanks	149

TABLE E-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 2 of 3)

Footnotes:

(1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.

(2) Although tanks, BX-103, T-102 and T-112 met the interim stabilization administrative procedure at the time they were stabilized, they no longer meet the recently updated administrative procedure. The tanks were re-evaluated in 1996 and memo 9654456, J. H. Wicks to Dr. J. K. McClusky, DOE-RL, dated September 1996, was issued which recommended that no further pumping be performed on these tanks, based on an economic evaluation.

Document RPP-5556, Rev. 0, "Updated Drainable Interstitial Liquid Volume Estimates for 119 Single-Shell Tanks Declared Stabilized," J. G. Field, February 7, 2000, states that five tanks no longer meet the stabilization criteria (BX-103, T-102, and T-112 exceed the supernate criteria, and BY-103 and C-102 exceed the DIL criteria).

An intrusion investigation was completed on tank B-202 in 1996 because of a detected increase in surface level. As a result of this investigation, it was determined that this tank no longer meets the recently updated administrative procedure for 200 series tanks.

(3) Original Interim Stabilization data are missing on four tanks: B-201, T-102, T-112, and T-201. Document HNF-SD-RE-TI-178, Rev. 7, dated February 9, 2001, added three additional tanks to those missing stabilization data: A-104, BX-101, and SX-115.

(4) Tank 241-T-104 was Interim Stabilized on November 19, 1999. In-tank video taken October 7, 1999, shows the surface is clearly sludge-type waste with no saltcake present. No visible water on surface. Waste surface appears level across tank with numerous cracks. There is a minimal collapsed area around the saltwell screen, with no visible bottom.

(5) Tank 241-T-110 was Interim Stabilized on January 5, 2000, due to major equipment failure. An in-tank video taken October 7, 1999 (pumping was discontinued on August 12, 1999), showed the surface of this tank as smooth, brown-tinted sludge with visible cracks.

(6) Tank 241-S-103 was declared Interim Stabilized April 18, 2000. The surface is a rough, black and brown-colored waste with yellow patches of saltcake visible throughout. The surface appears to be damp but not saturated, and shows irregular cracking typically seen with surfaces beginning to dry out. A pool of supernatant liquid (10 feet in diameter, 5 feet deep, 1.0 Kgallons) is visible from video observations.

(7) Tank 241-SX-104 was declared Interim Stabilized April 26, 2000, due to major equipment failure. The surface is a rough, yellowish gray saltcake waste with an irregular surface of visible cracks and shelves that were created as the surface dried out. The waste surface appears to be dry and shows no standing water within the tank.

(8) Tank 241-SX-106 was declared Interim Stabilized May 5, 2000. The surface is a smooth, white-colored saltcake waste. The surface level slopes slightly from the tank sidewall down to a large depression in the center of the tank. A second depression surrounds both saltwell screens and an abandoned LOW. The waste surfaces appear dry and show no standing water within the tank.

TABLE E-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 3 of 3)

(9) Tank 241-U-103 was declared Interim Stabilized September 11, 2000. The surface is a brown colored waste with irregular patches of white salt crystal. Approximately 30% of the waste surface is covered by the salt formations. The surface level slopes slightly from the tank sidewall down to the first of two depressions in the center of the tank. The waste surface appears dry and shows signs of drying and cracking due to saltwell pumping. LOW readings indicate an average adjusted ILL of 60.2 inches. There is a small pool of supernatant liquid estimated to be 500 gallons.

(10) Tank 241-S-106 was declared Interim Stabilized on February 1, 2001. The surface is a rough, brown and yellow-colored saltcake waste with an irregular surface of mounds and saltcake crystals that were created as the surface was dried out. The waste surface appears to be dry and shows no standing water within the tank. There is no evidence of supernatant liquid from video observations. The waste surface slopes gradually from the tank sidewall to the depression in the center of the tank. The depression surrounds both of the saltwell screens, but does not extend around the temperature probe and ENRAF devices.

(11) Tank 241-U-105 was declared Interim Stabilized on March 29, 2001, due to major equipment failure. The surface is a brown colored waste with irregular patches of white salt crystal. Approximately 15% of the surface is covered by the salt formations. The surface level slopes to the first of two depressions in the center of the tank; the first depression is cone shaped and estimated to be 22 feet in diameter. The second depression, inside the first, is cylindrically shaped and has a diameter of approximately 10 feet. Both depressions are centered on the saltwell screen. The waste surface appears dry and shows signs of cracking due to saltwell pumping. There is no visible liquid in the tank.

(12) Tank 241-U-106 was declared Interim Stabilized on March 9, 2001. The surface is a dark brown/yellow colored waste that is covered with many stalagmite-type crystals growing on the surface. The crystals cover approximately 75% of the waste surface. The waste surface is irregular, appears dry, and shows only minimal signs of cracking due to saltwell pumping. The supernatant pool is estimated to be 13.3 feet in diameter based on the visible portion of the saltwell screen. The pool is centered on the saltwell screen.

(13) Tank 241-S-109 was declared Interim Stabilized on June 11, 2001. The surface is primarily a white colored salt crystal with small patches of dark salt visible due to saltwell/sampling activities. Approximately 95% of the waste surface is covered by the salt formations. The surface level slopes slightly from the tank sidewall down to a depression in the center of the tank. The waste surface appears rough and dry and shows signs of cracking and slumping due to saltwell pumping.

TABLE E-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES

June 30, 2001
(sheet 1 of 2)

New single-shell tank interim stabilization milestones were negotiated in 1999 and are identified in the "Consent Decree." The Consent Decree was approved on August 16, 1999.

CONSENT DECREE
Attachments A-1 and A-2

Following is the schedule for pumping liquid waste from the remaining twenty-nine (29) single-shell tanks. This schedule is enforceable pursuant to the terms of the Decree except for the "Project Pumping Completion Dates," which are estimates only and not enforceable. (Note: Schedule does not include C-106)

	Tank Designation	Projected Pumping Start Date	Actual Pumping Start Date	Projected Pumping Completion Date	Interim Stabilization Date
1.	T-104	Already initiated	March 24, 1996	May 30, 1999	November 19, 1999
2.	T-110	Already initiated	May 12, 1997	May 30, 1999	January 5, 2000
3.	SX-104	Already initiated	September 26, 1997	December 30, 2000	April 26, 2000
4.	SX-106	Already initiated	October 6, 1998	December 30, 2000	May 5, 2000
5.	S-102	July 31, 1999	March 18, 1999	March 30, 2001	
6.	S-106	July 31, 1999	April 16, 1999	March 30, 2001	February 1, 2001
7.	S-103	July 31, 1999	June 4, 1999	March 30, 2001	April 18, 2000
8.	U-103*	June 15, 2000	September 26, 1999	April 15, 2002	September 11, 2000
9.	U-105*	June 15, 2000	December 10, 1999	April 15, 2002	March 29, 2001
10.	U-102*	June 15, 2000	January 20, 2000	April 15, 2002	
11.	U-109*	June 15, 2000	March 11, 2000	April 15, 2002	
12.	A-101	October 30, 2000	May 6, 2000	September 30, 2003	
13.	AX-101	October 30, 2000	July 29, 2000	September 30, 2003	
14.	SX-105	March 15, 2001	August 8, 2000	February 28, 2003	
15.	SX-103	March 15, 2001	October 26, 2000	February 28, 2003	
16.	SX-101	March 15, 2001	November 22, 2000	February 28, 2003	
17.	U-106*	March 15, 2001	August 24, 2000	February 28, 2003	March 9, 2001
18.	BY-106	July 15, 2001		June 30, 2003	
19.	BY-105	July 15, 2001		June 30, 2003	
20.	U-108	December 30, 2001		August 30, 2003	
21.	U-107	December 30, 2001		August 30, 2003	
22.	S-111	December 30, 2001		August 30, 2003	
23.	SX-102	December 30, 2001		August 30, 2003	
24.	U-111	November 30, 2002		September 30, 2003	
25.	S-109	November 30, 2002	September 23, 2000	September 30, 2003	**June 11, 2001**
26.	S-112	November 30, 2002		September 30, 2003	
27.	S-101	November 30, 2002		September 30, 2003	
28.	S-107	November 30, 2002		September 30, 2003	
29.	C-103	No later than December 30, 2000, DOE will determine whether the organic layer and pumpable liquids will be pumped from this tank together or separately, and will establish a deadline for initiating pumping of this tank. The parties will incorporate the initiation deadline into this schedule as provided in Section VI of the Decree. ORP issued a letter to WDOE on December 22, 2000, meeting the requirements of this milestone.			

* Tanks containing organic complexants.

TABLE E-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES
(sheet 2 of 2)

Completion of Interim Stabilization. DOE will complete interim stabilization of all 29 single-shell tanks listed above by September 30, 2004.

Percentage of Pumpable Liquid Remaining to be Removed:

93% of Total Liquid	9/30/1999 (1)
38% of Organic Complexed Pumpable Liquids	9/30/2000 (2)
5% of Organic Complexed Pumpable Liquids	9/30/2001
18% of Total Liquid	9/30/2002
2% of Total Liquid	9/30/2003

The "percentage of pumpable liquid remaining to be removed" is calculated by dividing the volume of pumpable liquid remaining to be removed from tanks not yet interim stabilized by the sum of the total amount of liquid that has been pumped and the pumpable liquid that remains to be pumped from all tanks.

(1) The Pumpable Liquid Remaining was reduced to 88%, by 9/30/99, exceeding this milestone. Reference LMHC-9957926 R1, D. I. Allen, LHMC RPP to D. C. Bryson, DOE-OPP, dated October 26, 1999

(2) The Complexed Pumpable Liquid Remaining was reduced to 38%, by 9/15/00. Reference CHG-0004752, R. F. Wood, CHG, to J. J. Short, DOE-RPP, dated September 13, 2000.

TABLE E-3. SINGLE-SHELL TANKS STABILIZATION STATUS SUMMARY

June 30, 2001

Partial Interim Isolated (PI)

EAST AREA
A-101
A-102
AX-101
BY-102
BY-103
BY-105
BY-106
BY-109
C-103
C-105
C-106
East Area 11

WEST AREA
S-101
S-102
S-103
S-106
S-107
S-108
S-109
S-110
S-111
S-112
SX-101
SX-102
SX-103
SX-104
SX-105
SX-106
T-101
T-104
T-107
T-110
T-111
U-102
U-103
U-105
U-106
U-107
U-108
U-109
U-110
U-111
West Area 29
Total 40

Intrusion Prevention Completed (IP)

EAST AREA
A-103
A-104
A-105
A-106
AX-102
AX-103
AX-104
B-FARM - 16 tanks
BX-FARM - 12 tanks
BY-101
BY-104
BY-107
BY-108
BY-110
BY-111
BY-112
C-101
C-102
C-104
C-107
C-108
C-109
C-110
C-111
C-112
C-201
C-202
C-203
C-204
East Area 55

WEST AREA
S-104
S-105
SX-107
SX-108
SX-109
SX-110
SX-111
SX-112
SX-113
SX-114
SX-115
T-102
T-103
T-105
T-106
T-108
T-109
T-112
T-201
T-202
T-203
T-204
TX-FARM - 18 tanks
TY-FARM - 6 tanks
U-101
U-104
U-112
U-102
U-202
U-203
U-204
West Area 53
Total 108

Interim Stabilized (IS)

EAST AREA
A-102
A-103
A-104
A-105
A-106
AX-102
AX-103
AX-104
B-FARM - 16 tanks
BX-FARM - 12 tanks
BY-101
BY-102
BY-103
BY-104
BY-107
BY-108
BY-109
BY-110
BY-111
BY-112
C-101
C-102
C-104
C-105
C-107
C-108
C-109
C-110
C-111
C-112
C-201
C-202
C-203
C-204
East Area 60

WEST AREA
S-103
S-104
S-105
S-106
S-108
S-109
S-110
SX-104
SX-106
SX-107
SX-108
SX-109
SX-110
SX-111
SX-112
SX-113
SX-114
SX-115
T-Farm - 16 tanks
TX-FARM - 18 tanks
TY-FARM - 6 tanks
U-101
U-103
U-104
U-105
U-106
U-110
U-112
U-201
U-202
U-203
U-204
West Area 69
Total 129

Controlled, Clean, and Stable (CCS)

EAST AREA
BX-FARM - 12 Tanks
East Area 12

WEST AREA
TX-FARM - 18 tanks
TY FARM - 6 tanks
West Area 24
Total 36

Note: CCS activities have been deferred until funding is available.

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APPENDIX F

TANKS AND EQUIPMENT CODE AND STATUS DEFINITIONS

TABLE F - 1. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

June 30, 2001

1. TANK STATUS CODES

WASTE TYPE (also see definitions, section 2 below)

AW	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	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)

TANK USE (DOUBLE-SHELL TANKS ONLY)

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

2. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

WASTE TYPES

Aging Waste (AW)

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 the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

Dilute Complexed Waste (DC)

Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetra-acetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

Dilute Non-Complexed Waste (DN)

Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

Double-Shell Slurry (DSS)

Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

Double-Shell Slurry Feed (DSSF)

Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

Non-complexed (NCPLX)

General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

PUREX Decladding (PD)

PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

Drainable Interstitial Liquid (DIL)

Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4 below)

Supernate

The liquid above the solids or in large liquid pools covered by floating solids in waste storage tanks. (See also Section 4 below)

Ferrocyanide

A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[Fe(CN)_6]^{-4}$.

INTERIM STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow or saltwell screen inflow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

Partially Interim Isolated (PI)

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusuable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

TANK INTEGRITY

Sound

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

Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new 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

Historically, the drywells were monitored with gross logging tools as part of a secondary leak monitoring system. In some cases, neutron-moisture sensors were used to monitor moisture in the soil as a function of well depth, which could be indicative of tank leakage. The routine gross gamma logging data were stored electronically from 1974 through 1994. The routine gross gamma logging program ended in 1994. A program was initiated in 1995 to log each of the available drywells in each tank farm with a spectral gamma logging system. The spectral gamma logging system provides quantitative values for gamma-emitting radionuclides. The baseline spectral gamma logging database is available electronically.

Repeat spectral drywell scans are not part of the established Tank Farm leak detection program, but can be run on request if special needs arise. A select subset of drywells is routinely monitored by the Vadose Zone Characterization Project to assess movement of gamma-emitting radionuclides in the subsurface.

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 can be monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms. There are currently no functioning laterals and no plan to prepare them for use.

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 Surveillance Analysis Computer System (SACS).

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 until February 1999, the majority of the FICs transmitted readings to the CASS. Since CASS retirement, all FIC gauges are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. 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 usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (SY-102 and AW-103 tanks), are used for special, rather than routine, 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, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photographs and Videos

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

TERMS/ACRONYMS

CCS Controlled, Clean and Stable (tank farms)

FSAR Final Safety Analysis Report (replaces BIOS, effective October 18, 1999)

II Interim Isolated

IP Intrusion Prevention Completed

IS Interim Stabilized

MT/FIC/ENRAF Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)

OSD Operating Specifications Document

PI Partial Interim Isolated

SAR Safety Analysis Reports

SHMS Standard Hydrogen Monitoring System

TMACS Tank Monitor and Control System

TPA Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)

TSR Technical Safety Requirements

USQ Unreviewed Safety Question

Wyden Amendment "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

3. INVENTORY AND STATUS BY TANK – COLUMN VOLUME CALCULATIONS AND DEFINITIONS FOR TABLE A-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Total Waste	Solids volume plus Supernatant liquid. Solids include sludge and saltcake (see definitions below).
Supernate (1)	May be either measured or estimated. Supernate is either the estimated or measured liquid floating on the surface of the waste or under a floating solids crust. In-tank photographs or videos are useful in estimating the liquid volumes; liquid floating on solids and core sample data are useful in estimating large liquid pools under a floating crust.
Drainable Interstitial Liquid (DIL) (1)	This is initially calculated. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using calculated porosity values from past pumping or actual data for each tank. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. The sum of the interstitial liquid contained in saltcake and sludge minus an adjustment for capillary height is the initial volume of drainable interstitial liquid.

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Pumped This Month	Net total gallons of liquid pumped from the tank during the month. If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume.
Total Pumped (1)	Cumulative net total gallons of liquid pumped from 1979 to date.
Drainable Liquid Remaining (DLR) (1)	Supernate plus Drainable Interstitial Liquid. The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate.
Pumpable Liquid Remaining (PLR) (1)	Drainable Liquid Remaining minus unpumpable volume. Not all drainable interstitial liquid is pumpable.
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 or videos 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 or videos 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 In-tank Photo	Date of last in-tank photographs taken.
Last In-tank Video	Date of last in-tank video taken.
See Footnotes for These Changes	Indicates any change made the previous month. A footnote explanation for the change follows the Inventory and Status by Tank Appendix (Table E-6).

(1) As pumping continues, supernate, DIL, DLR, PLR, and total gallons pumped are adjusted accordingly based on actual pump volumes.

APPENDIX G

TANK FARM CONFIGURATION, STATUS AND FACILITIES CHARTS

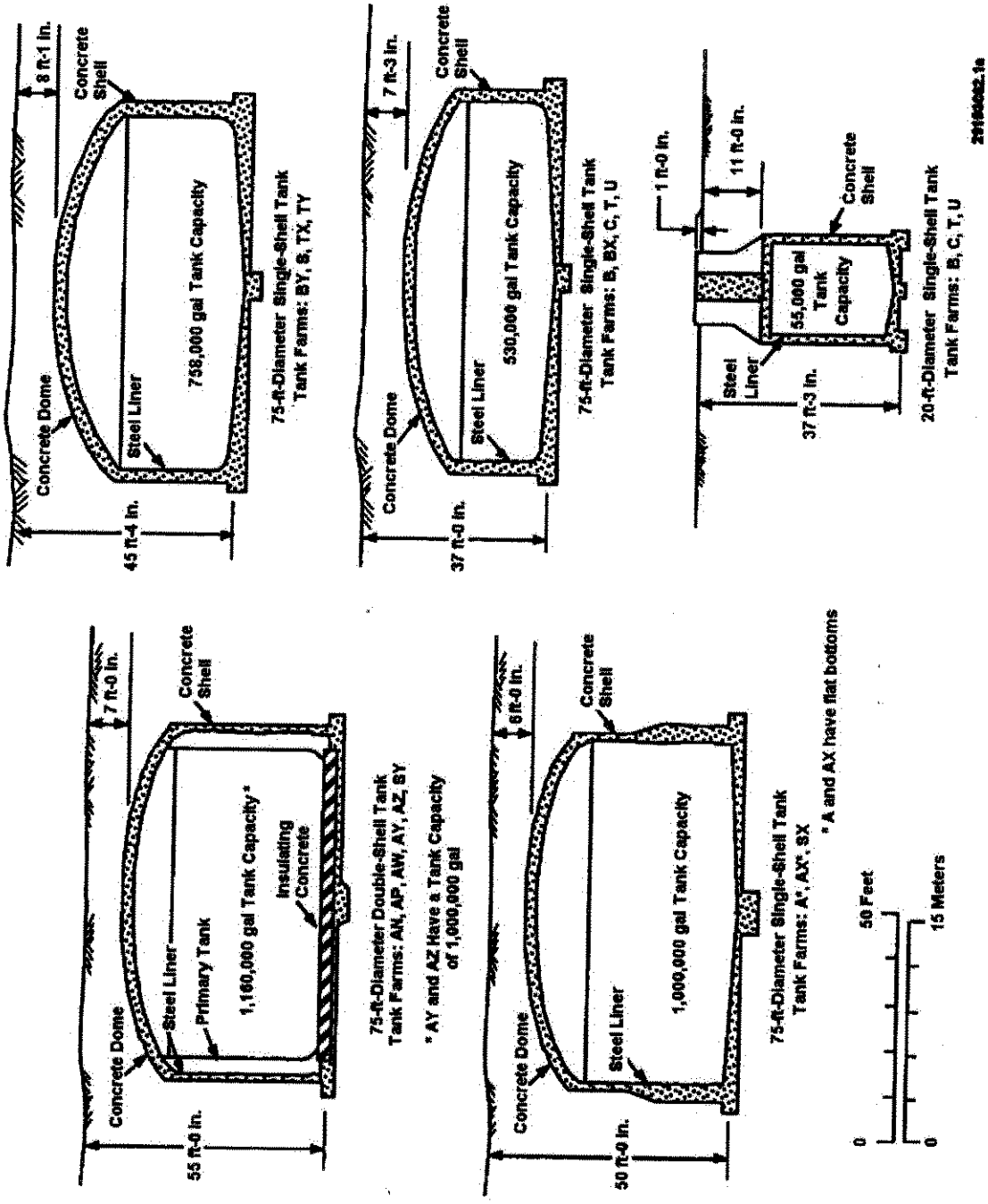

Figure G-1. High-Level Waste Tank Configuration

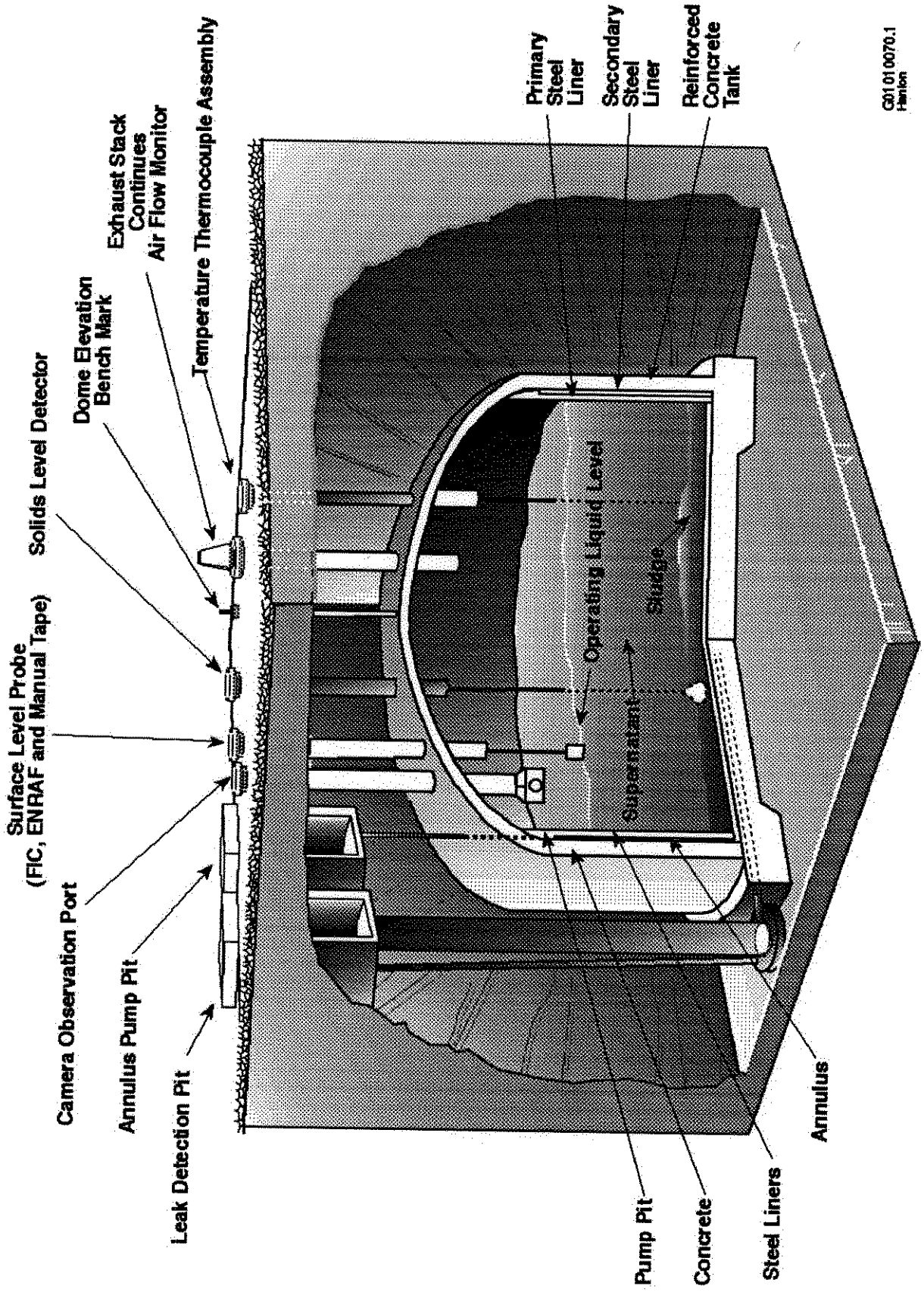

Figure G-2. Double-Shell Tank Instrumentation Configuration

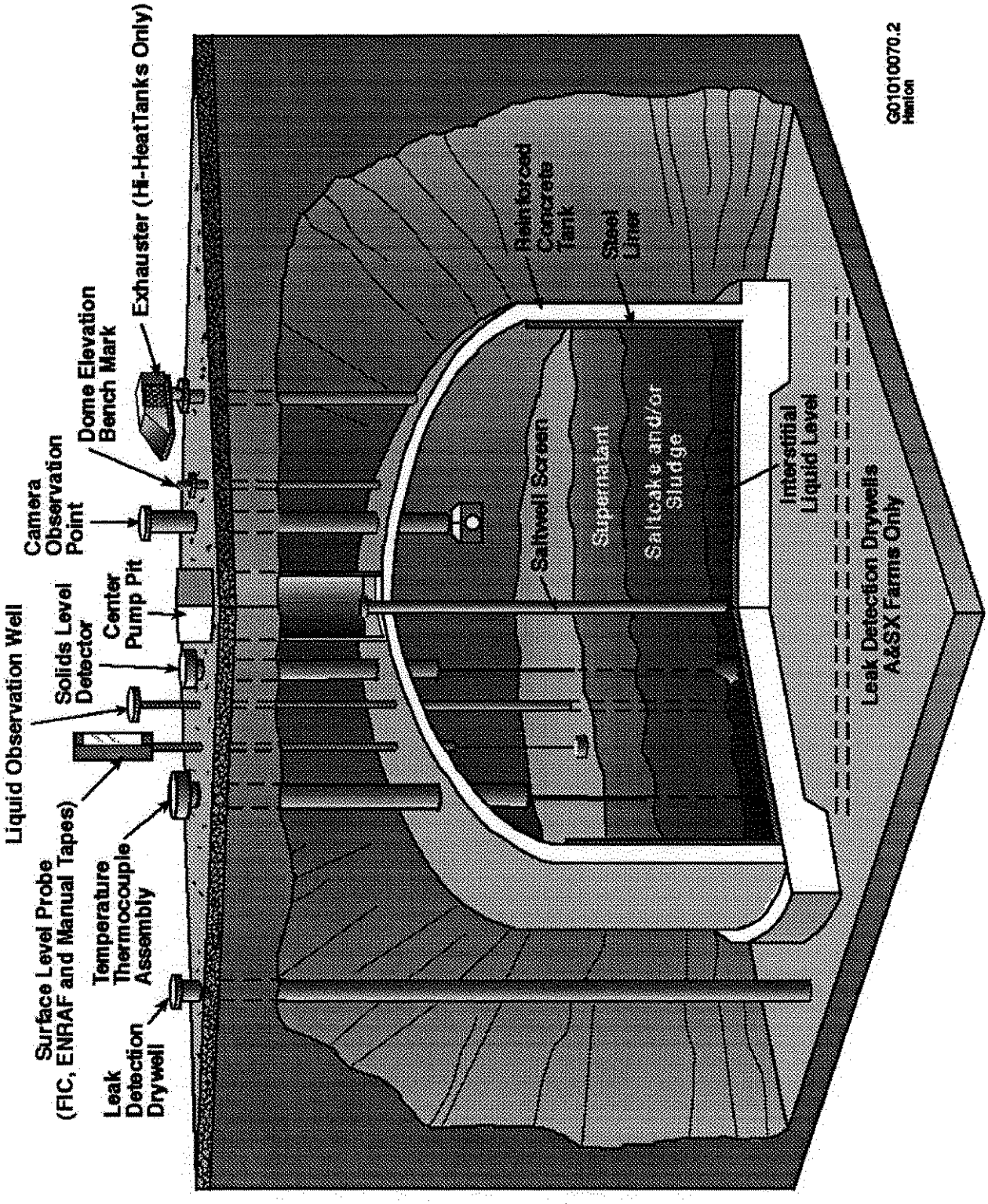

Figure G-3. Single-Shell Tank Instrumentation Configuration

Hanford
Tank Farm Facilities
200 East

Note:
All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

Active Lines Only

- Concrete encased or pipe-in-pipe
- Direct Buried Pipe
- Cross-Site Transfer Lines (concrete encased or pipe-in-pipe)

Controlled, Clean and Stable

Single-Shell

Sound Tanks

Double-Shell

Intrusion Prevention Completed

All tanks 75 ft. dia. except 200 series tanks which are 20 ft. dia. @ 55,000 gal

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
ENRAF/FIC/MT = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System

High Heat Load Tanks = East Area C-106

Tank Number

Radiation Monitoring Dry Well – Approx Location
● = Active
○ = Inactive
Dry Well Monitoring No Longer Being Routinely Done; By Special Request/Project Only.

Radiation Monitoring Laterals Under Tank (X = not used)

Total Solids (1,000 gal) Salt Cake/ Sludge/DSS (Inactive Tanks)

Drainable Liquid Remaining (1000 gal) (Inactive Tanks)

Exhauster (A-104/105/106 inoperative)

Liquid-Level Gauges
▼ = FIC read manually
Y = Tape read manually
▽ = Intrusion Mode FIC

Watch List Tanks

Interim Stabilized (Yellow Tank)

■=ENRAF Read Manually
☑=Auto ENRAF on TMACS

Airlift Circulators (AN-107 and AW-102 are inoperative)

Temperature Reading:
● Automatic (TMACS)
○ Manual

Liquid Observation Well (LOW)

Screen – Jet Pump –

Assumed Leaker

Assumed Leaked Date

Inactive Cross -Site Transfer Line

Active Cross - Site Transfer Line to (From 6241-V)

Watch List Tanks
H2/Flammable gases

Status as of June 30, 2001
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G-5/6

BY-Tank Farm
In Service 1950-51
12 @ 758,000 gal

B-Tank Farm
In Service 1945-47
12 @ 530,000 gal
4 @ 55,000 gal

BX-Tank Farm
In Service 1948-50
12 @ 530,000 gal

C-Tank Farm
In Service 1946-53
12 @ 530,000 gal
4 @ 55,000 gal

244-BX DCRT

ER-152

ER-151

ER-153

CR Vault

244-A DCRT

WESF

B-Plant

AX-155

Valve Pits

AN-Tank Farm
In Service 1981
7 @ 1,160,000 gal

AR-151

204 AR

AR Vault

AZ-Tank Farm
In Service 1975-76
(Aging Waste Tanks)
2 @ 1,000,000 gal

AY-Tank Farm
In Service 1971-76
(Aging Waste Tanks) 2 @ 1,000,000 gal

AX-Tank Farm
In Service 1965-66
4 @ 1,000,000 gal

AX-152

Valve Pits

A-Tank Farm
In Service 1956-57
6 @ 1,000,000 gal

Valve Pits

242-A Evaporator

AP Valve Pit

Grout Equip

Valve Pits

Vault Field

PUREX

A-151

AW-Tank Farm
In Service 1980
6 @ 1,160,000 gal

AP-Tank Farm
In Service 1986
8 @ 1,160,000 gal

Figure G-4
(Schematic)

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6/30/01

HNF-EP-0182, Rev. 159

Hanford
Tank Farm Facilities
200 West

Note:
All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

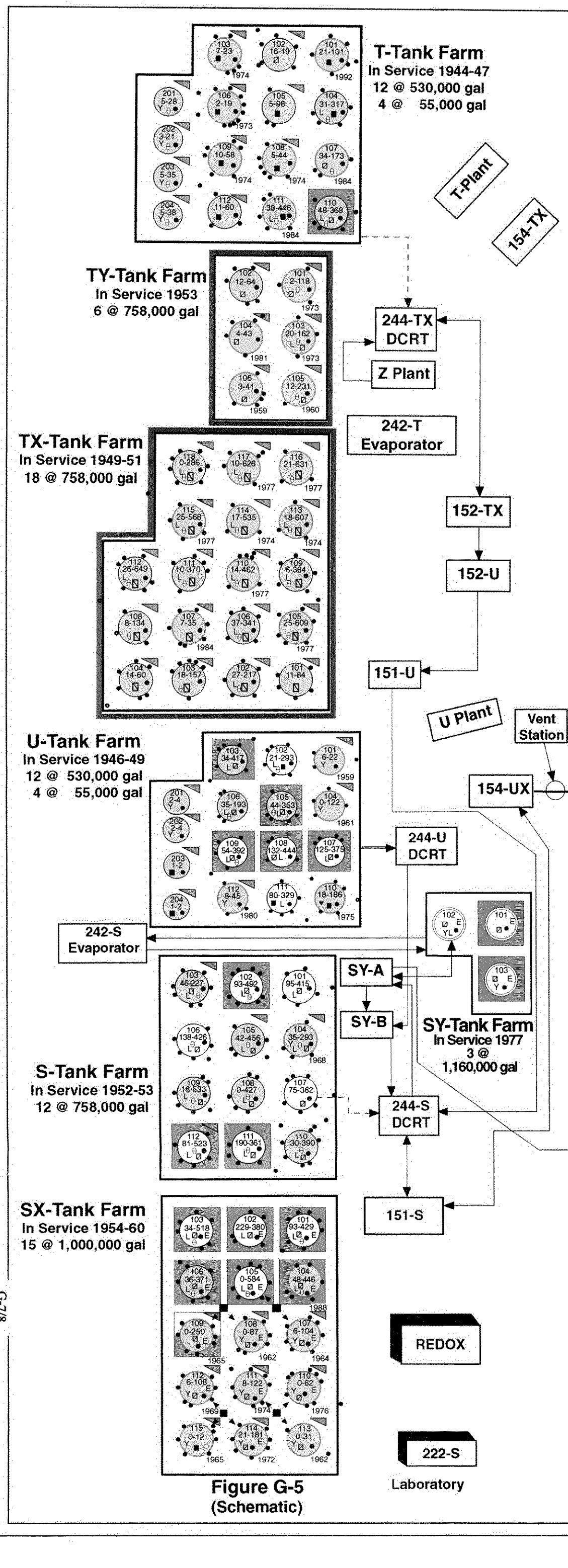


Figure G-5
(Schematic)

Active Lines Only

- Concrete encased or pipe-in-pipe
- Direct Buried Pipe
- Cross-Site Transfer Lines (concrete encased or pipe-in-pipe)

Controlled, Clean and Stable

Single-Shell

Double-Shell

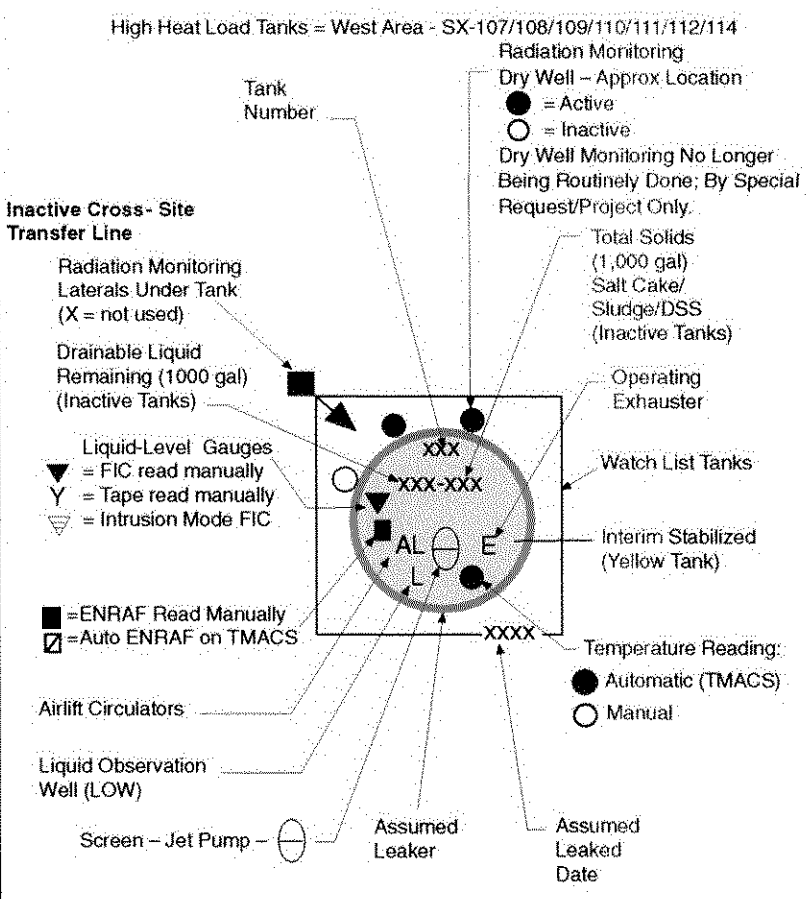
Sound Tanks

Intrusion Prevention Completed

All tanks 75 ft. dia. except
200 series tanks which are
20 ft. dia. @ 55,000 gal

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
ENRAF/FIC/MT = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System

High Heat Load Tanks = West Area - SX-107/108/109/110/111/112/114



Inactive Cross- Site Transfer Line

6241-A → 6241-V → Active Cross - Site Transfer Line to (244-A)

Watch List Tanks

H2/Flammable gases (109-SX has potential only-other tanks vent through it)

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