Tank 41-H Salt Level Fill History 1985 to 1987 (U)

by

R. H. Ross

Westinghouse Savannah River Company
Savannah River Site
Aiken, South Carolina 29808

MASTER

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TANK 41H SALT LEVEL FILL HISTORY 1985 to 1987 (U)

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R. H. Ross

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James Robert Hester
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R. H. Ross
R. H. Ross
Author

James Robert Hester
J. R. Hester
Technical Reviewer

Michael C. Chandler
M. C. Chandler, Manager
High Level Waste Characterization

B. L. Lewis
B. L. Lewis, Manager
High Level Waste Support

T. M. Monahan
T. M. Monahan, Manager
High Level Waste Engineering

Date: 5/16/96

Date: 5/16/96

Date: 5/16/96

Date: 5/16/96

Date: 5/16/96

Introduction

The fill rate of the evaporator drop waste tank (i.e., salt tank) at Savannah River Site contained in the Waste Management Technology (WMT) monthly data record [1] is based upon a simple formula that apportioned 10 percent of the evaporator output concentrate to the salt fill volume. Periodically, the liquid level of the salt tank would be decanted below the salt level surface and a visual inspection of the salt profile would be accomplished. The salt volume of the drop tank would then be corrected, if necessary, based upon the visual elevation of the salt formation. This correction can erroneously indicate an excess amount of salt fill occurred in a short time period. This report establishes the correct fill history for Tank 41H.

Summary

The calculated salt level of the 41H salt tank differs greatly from the reported historical salt level [1]. The historical salt level indicates the last 55 inches of saltcake formed during March 1987. The last 60 inches of salt deposition within tank 41H occurred between April 1986 to April 1987, roughly a year. The basis of this finding is the reported reel tape measurement immediately following the decant of the salt tank. The reel tape readings were actually the recordings of the salt in lieu of the liquid level because the liquid level of the salt tank was drawn well below the salt surface.

Discussion

During the course of filling a radioactive waste salt tank (i.e., drop tank), the drop tank must be decanted several times since only a fraction of the evaporator concentrate will form salt as it cools within the tank. Each filling deposits a salt layer on top of the last to eventually fill the tank with salt. The fill history (Figure 1) for Tank 41 reported in the historical data [1] typically under-predicted the actual salt level on a monthly basis. When the salt tank required more frequent liquid transfers to maintain the tank below the maximum operating limit (362 inches), the tank liquid level was drawn down and a visual inspection of the salt profile was performed. The WMT monthly data record was then adjusted to reflect any differences between the visual inspection elevation and the reported elevation. The WMT monthly data record adjusted the saltcake elevation upward 55 inches for the month of March 1987 as a result of visual inspection. Since a 55 inch monthly accumulation is not reasonable, a more accurate salt fill history was investigated.

The "half-full" point for Tank 41H salt deposition was recorded visually in May 1985. Visual inspections were performed on May 22, 1985 (Figure 2) and March 16, 1987 (Figure 3). Figure 2 is a photograph looking down between two rows of cooling coils. Heavy saltcake formation is evident on the lower region of the coiling coils. The liquid level shown between the saltcake formations was measured at 190 inches. A saltcake sounding performed through the H riser revealed a salt level of 108 inches, some 82 inches below the observed liquid surface. The large saltcake cones around the cooling coils at the liquid level are estimated to extend 60 inches above the liquid surface when compared to the 3 foot pitch (i.e., spacing between coils) of the cooling coils [2]. The saltcake on the cooling coils directly above the large saltcake cones (250 - 290 inches) is approximately the thickness of two (2) inches. The saltcake at the top of the cooling coils (290 - 342 inches) is approximately the thickness of one (1) inch as judged by the 2 inch pipe diameter [2]. The light salt deposition on the cooling coils above 250 inches indicates a limited fill history at this elevation prior to May 22, 1985.

Applying the saltcake volume above the liquid surface to the "unfilled region" between the saltcake cones below the liquid surface would essentially "fill in" the salt level to an elevation of 190 inches. An "effective" salt elevation of 190 inches during May 1985 is reflected in Figure 1. Therefore, all of the estimated salt level elevations plotted (reconstructed salt level) on Figure 1 are bound by visual inspections on both extremes of the plot.

The WMT monthly data record reported the salt level as 285 inches on 2/28/87 [1]. The March 16, 1987 photograph (Figure 3) showed a uniform salt level approximately at the top of the straight run [2] of the cooling coils (i.e., 342 inches). This layer of salt appeared to be planar and its composition is totally different than the saltcake of the lower regions of the tank (Figure 2).

The salt elevation of Tank 41 can be determined by examination of the reported reel tape measurement immediately following the decant of the salt tank. The WMT monthly data record reports each tank transfer that occurred within the month. Contained with each transfer record is the initial tank liquid level, the final liquid level, and the amount of the liquid transferred. A calculation of height of the liquid layer transferred multiplied by the tank liquid calibration (i.e., 3510 gallons per inch) [1] should reveal the decant amount for that transfer; however, the transfer amount of the WMT monthly data records constantly exceeded the expected liquid volume by a large ratio. This condition would be consistent with the routine operation of decanting a evaporator drop tank. Typically, a drop tank would be decanted to the maximum extent possible down to the Telescoping Transfer Jet (TTJ) elevation liquid level (i.e., allow the jet to "gas-out"). The reel tape recorded liquid level of the tank was 341 inches on March 15, 1987 after the transfer to tank 43H. Figure 3, taken March 16, 1987, validates the conclusion that the reel tape was recording the salt level the previous day.

The additional transfer volume was found to be the product of the difference between the post transfer reel tape reading and the elevation (265.5 inches) of the Telescoping Transfer Jet (TTJ) multiplied by the tank liquid calibration (i.e., 3510 gallons per inch) times the void volume (i.e., liquid volume of the saltcake) [3]. The void volume is nominally between 20 to 30% of the saltcake [3]. This condition would essentially remove all the interstitial liquid above the TTJ elevation from the saltcake on every decant operation.

As Tank 41H approached the maximum fill level during the last year of salt receipt, the decant operation would run concurrently with the evaporator drop operation. The 242-16H evaporator "dropped" concentrate to Tank 41H at a slow rate (13 to 19 gpm) [1]. The hot concentrate would spread over the tank salt surface and cool. A small portion of the concentrate would form salt while the majority of the liquid concentrate would filter down through the saltcake to the TTJ elevation. The Tank 41H to 43H transfer operation would continue at 75 gpm until the receiving tank, typically the evaporator feed tank, liquid level would stop increasing (i.e., Tank 41 jet gas-out), thereby ensuring the maximum liquid transfer. In short, the saltcake above 265 inches (i.e., TTJ elevation) would constantly be drained of the interstitial liquid analogous to liquid poured onto a sand bed. The reel tape measurement was in essence a recording of the wet salt surface and not a liquid level.

A slow trend of salt deposition can be shown (Figure 1) for the last year of tank 41 salt deposition. The reconstructed salt elevation was determined by averaging the post transfer reel tape readings for the month (Table 1). The salt level increased 1.1 inches per week eventually reaching an average salt height of 353 inches in April 1987. This salt level increase rate would only be valid for the upper portion of the salt tank above the TTJ maximum retractable height. Below the 265 inches elevation, the saltcake attached to the vertical cooling coils and tank wall during the early tank fill history, thereby altering the linear deposition rate of the saltcake level to some polynomial function.

DATA SOURCES

1. Waste Management Monthly Data Records (January 1985 - June 1987), Intertank Transfers Records
2. DWG-701130, Building 241-H Waste Storage Facility FY 76, Cooling Coil Elevation Tk 38 -Tk 43, Revision 26, Section A-A
3. DPST-82-502, Composition of H Area and SRP High-Level Waste, J. R. Fowler, 4/28/82

CC: T. M. Monahan

V. G. Dickert

B. L. Lewis

WM Files (code 175.2.2)

703-H

703-H

703-H

T. C. Temple (DOE)

R. L. Boyleston

J. R. Chandler

Central Files

703-H

706-23C

730-B

773-52A

TABLE 1 - Tank 41 Monthly Report Fill Data

Date	Reconstructed	Data Record	
	Avg. Salt Level (in)	Salt Level (in)	Salt Volume (kgal)
Jan-85		66	232
Feb-85		66	232
Mar-85		72	251
Apr-85		72	251
May-85	190	72	251
Jun-85		85	300
Jul-85		87	305
Aug-85		90	317
Sep-85		104	364
Oct-85		107	374
Nov-85	271	110	387
Dec-85	278	114	401
Jan-86	282	123	433
Feb-86	285	136	477
Mar-86	292	146	514
Apr-86	301	160	563
May-86		171	599
Jun-86	308	175	614
Jul-86	314	188	661
Aug-86		202	710
Sep-86	315	218	764
Oct-86	319	229	803
Nov-86	322	243	854
Dec-86	323	256	899
Jan-87	326	273	959
Feb-87	337	285	1000
Mar-87	343	340	1193
Apr-87	353	353	1213
May-87	353	353	1213
Jun-87	353	353	1213

Figure 1 "Tank 41 Fill History"

Figure 2

Tank 41H Salt Profile on May 22, 1985

Figure 3

Tank 41H Salt Profile on March 16, 1987

TABLE WM-6

INTERTANK TRANSFERS

<u>Date</u>	<u>Tanks</u>		<u>Liq Level (In.)</u>		<u>Tk Cali- bration, (Gal/In.)</u>	<u>Gallons Transf^a</u>	<u>Type or Origin of Waste</u>
	<u>From</u>	<u>To</u>	<u>Initial</u>	<u>Final</u>			
					<u>F-Area</u>		
12/23/84 45			329.3	283.3	3510	272,000	Concentrated supernate
		26	299.5	340.0	3510	282,000	
01/04/85 45			343.1	307.7	3510	161,000	Concentrated supernate
		26	254.7	287.9	3510	167,000	
01/11/85 45			347.8	346.4	3510	13,000	Concentrated supernate
		26	231.9	232.9	3510	15,000	
01/16/85 45			359.9	297.2	3510	251,000	Concentrated supernate
		26	217.7	279.5	3510	262,000	

TABLE WM-6

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (In.)		Tk Cali- bration, (Gal/In.)	Gallons Transf ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
03/20	47		348.6	296.2	3510	194,000	Concentrated Supernate
		26	304.8	350.0	3510		
03/25	44		351.7	294.0	3510	187,000	Concentrated supernate
		26	308.9	350.0	3510		
04/02	47		341.5	290.4	3510	234,000	Concentrated supernate
		26	309.5	350.0	3510		
04/11	18		371.1	300.0	3540	251,000	Slurried Salt
		26	286.4	323.2	3510		
04/13	47		350.4	314.7	3510	140,000	Concentrated Supernate
		26	322.9	350.0	3510		
04/16	17		62.6	21.1	3540	211,000	Slurried Salt
		18	300.3	360.3	3540		
H-Area							
03/31	24		78.2	1.6	3540	271,000	R80F Waste
		38	115.2	195.7	3510	282,000	
04/06	41		355.2	342.3	3510	64,000	Concentrated LLW
		43	176.6	186.2	3510	69,000	Supernate
04/17	24		25.2	3.6	3540	98,000	Oxalic Acid Wash
		38	195.3	224.3	3510	102,000	
04/17	24		6.4	3.6	3540	9,600	Tk 24 Hot Water Rinse
		38	224.3	227.1	3510	10,000	
04/17	41		347.7	177.4	2800*	588,000	Concentrated LLW
		43	175.1	301.9	3510	609,000	Supernate

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

*Adjusted to account for salt on cooling coils and tank walls.

TABLE WM-6

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (In.)		Tk Cali- bration, (Gal/In.)	Gallons ^a Transf	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
01/20	45		297.2	242.7	3510	223,000	Concentrated supernate
		26	279.7	331.7	3510	230,000	
01/23	25		266.0	264.9	3510	5,000	Concentrated supernate
		26	316.1	316.9	3510	5,000	
01/26	17		199.7	109.9	3540	326,000	Slurried Salt
		18	223.1	315.1	3540	326,000	
01/30	17		113.7	60.1	3540	182,000	Slurried Salt
		18	314.9	366.3	3540	182,000	
02/02	45		331.2	280.8	3510	226,000	Concentrated Supernate
		26	218.6	266.4	3510	233,000	
02/06	47		334.7	272.6	3510	227,000	Concentrated Supernate
		26	247.1	297.1	3510	233,000	
02/14	45		351.2	337.1	3510	44,000	Concentrated Supernate
		26	249.4	258.2	3510	46,000	
02/15	45		337.2	299.4	3510	171,000	Concentrated Supernate
		26	258.1	295.9	3510	175,000	
H-Area							
01/29	41		355.9	191.1	3350	638,000	Concentrated LHW Supernate
		43	190.7	320.0	3510	663,000	
02/15	39		363.4	302.7	3510	213,000	H-W Supernate
		35	87.2	153.3	3510	232,000	

TABLE #4-5
INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (In.)		Tk Cali- bration, (Gal/In.)	Gallons Transf ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
04/21	47		340.5	305.3	3510	173,000	Concentrated Supernate
		26	309.3	344.9	3510	178,000	
04/26	25		348.7	339.7	3510	36,000	Concentrated supernate
		26	290.3	296.3	3510	38,000	
04/29	47		341.3	291.3	3510	210,000	Concentrated supernate
		26	293.2	327.3	3510	217,000	
04/29	25		349.0	337.6	3510	57,000	Concentrated supernate
		26	327.3	340.2	3510	59,000	
05/01	25		339.8	318.0	3510	79,000	Concentrated supernate
		26	331.8	345.0	3510	82,000	
05/16	47		355.3	288.1	3510	434,000	Concentrated Supernate
		26	234.3	349.2	3510	452,000	
H-Area							
04/25	24		14.2	1.7	3540	450,000	Tk. 24 Hot Water Rinse
		38	227.0	236.2	3510	32,000 ^b	Tk. 24 Hot Water Rinse
04/30	24		21.2	3.0	3540	61,000	Oxalic Acid Wash
		38	236.2	254.2	3510	63,000	Oxalic Acid Wash
05/19	21		363.0	292.8	3540	249,000	Supernate
		38	254.5	326.8	3510	254,000	Supernate
05/20	41		303.7	189.9	2550 ^c	526,000	Concentrated Supernate
		43	177.9	246.8	3510	547,000	Concentrated Supernate

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^b13,000 gallons inadvertently transferred to tank 13 due to valving error.

^cAdjusted to account for salt on cooling coils and tank walls.

TABLE WM-5

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (In.)		Tk Cali- bration, (Gal/In.)	Gallons Transf ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
02/22	18		366.0	306.0	3540	201,000	Slurried Salt
	26		243.6	283.6	3510	208,000	
02/24	45		355.2	298.3	3510	302,000	Concentrated supernate
	26		283.0	331.4	3510	317,000	
03/01	44		361.6	350.8	3510	36,000	Concentrated supernate
	26		317.1	324.9	3510	37,000	
03/05	45		332.4	309.1	3510	153,000	Concentrated supernate
	26		292.1	314.0	3510	163,000	
03/10	18		308.3	248.1	3540	211,000	Slurried Salt
	26		293.9	339.3	3510	218,000	
03/13	17		126.5	60.3	3540	240,000	Slurried Salt
	18		248.3	316.1	3540	240,000	
03/14	17		60.6	3.0	3540	186,000	Slurried Salt
	18		316.0	368.5	3540	186,000	
03/14	47		352.1	322.2	3510	128,000	Concentrated Supernate
	26		320.4	349.0	3510	131,000	
H-Area							
03/04	39		302.7	129.3	3510	610,000	HHW supernate
	35		153.3	340.1	3510	656,000	HHW supernate
02/26	23		251.6	183.3	3540	242,000	RBOF waste
	24		4.1	76.8	3540	257,000	RBOF waste
03/18	38		214.3	115.4	3510	347,000	LLW supernate
	43		176.3	256.0	3510	361,000	LLW supernate

TABLE WM-5

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (In.)		Tk Cali- oration, (Gal/In.)	Gallons Transf ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
05/21	25		346.7	328.8	3510	73,000	Concentrated Supernate
		26	308.5	323.1	3510	75,000	
05/21	47		355.6	332.5	3510	130,000	Concentrated supernate
		26	321.3	348.0	3510	134,000	
05/24	47		348.1	309.7	3510	167,000	Concentrated supernate
		26	320.0	349.0	3510	172,000	
05/27	25		352.1	304.7	3510	193,000	Concentrated supernate
		26	318.0	344.7	3510	200,000	
05/30	47		347.3	334.8	3510	61,000	Concentrated supernate
		26	334.2	345.0	3510	63,000	
06/03	47		358.9	285.9	3510	323,000	Concentrated supernate
		26	294.1	347.0	3510	332,000	
06/10	25		349.2	295.4	3510	224,000	Concentrated supernate
		26	285.8	315.0	3510	232,000	
06/14	47		339.8	299.8	3510	156,000	Concentrated supernate
		26	294.0	323.0	3510	159,000	
06/19	47		325.9	303.2	3510	111,000	Concentrated supernate
		26	276.2	291.6	3510	115,000	
H-Area							
06/12	38		326.5	92.8	3510	820,000	LLN Supernate
		43	149.9	332.9	3510	853,000	
06/20	41		346.2	338.2	2760 ^b	53,000	Concentrated LLN Supernate
		43	311.0	317.4	3510	55,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^bAdjusted to account for salt on cooling coils and walls.

TABLE MM-5
INTERTANK TRANSFERS

1985 Date	Tanks From To		Liq Level (in)		Tk Cali- bration, (gal/in) F-Area	Gallons Transfer ^a	Type or Origin of Waste
			Initial	Final			
06/21 ¹	47	26	325.1	290.6	3510	173,000	Concentrated supernate
			276.2	300.1	3510	179,000	
06/23	18	26	360.6	340.7	3540	70,000	Supernate
			277.5	288.4	3510	71,000	
06/25	18	26	342.1	297.1	3540	159,000	Supernate
			270.2	305.0	3510	161,000	
06/26	17	13	44.0	10.0	3540	150,000	Slurried sludge
			296.0	332.7	3540	150,000	
06/27	25	26	347.3	323.0	3510	103,000	Concentrated supernate
			304.6	314.4	3510	107,000	
06/30	47	26	347.8	308.4	3510	191,000	Concentrated supernate
			236.1	314.0	3510	197,000	
07/03	25	26	347.5	333.5	3510	61,000	Concentrated supernate
			237.1	299.0	3510	64,000	
07/08	47	26	340.4	275.3	3510	291,000	Concentrated supernate
			263.0	306.3	3510	300,000	
07/10	25	26	357.5	335.6	3510	111,000	Concentrated supernate
			293.5	312.1	3510	115,000	
07/16	25	26	344.3	276.4	3510	320,000	Concentrated supernate
			235.6	313.0	3510	332,000	
06/24	41	43	343.2	305.5	3510	152,000	Concentrated supernate
			307.2	341.0	3510	162,000	

¹ A portion of this transfer, dated 6/19, was included in the June monthly report. 62,000 gallons sent from tank 47 and 64,000 gallons received in tank 26 are included in this report period.

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
07/21 ¹	47		349.9	289.5	3510	345,000	Concentrated supernate
		26	290.9	338.0	3510	355,000	
07/30	47		343.0	309.0	3510	159,000	Concentrated supernate
		26	267.4	300.2	3510	165,000	
08/5	47		329.6	259.8	3510	313,000	Concentrated supernate
		26	269.1	319.1	3510	324,000	
08/12	25		334.0	276.5	3510	254,000	Concentrated supernate
		26	277.0	311.9	3510	264,000	
08/14	27		279.4	266.1	3510	44,000	Concentrated supernate
		26	304.5	315.0	3510	46,000	
08/18	27		266.3	207.0	3510	200,000	Concentrated supernate
		26	283.6	318.6	3510	207,000	
H-Area							
07/28	41		338.8	258.1	3510	239,000	Concentrated LLW supernate
		43	271.0	342.0	3510	298,000	
7/29	30		343.5	258.5	3510	298,000	Aged supernate
		13	183.1	255.5	3500	310,000	
8/4	11		202.7	169.8	2710	89,000	Aged supernate
		38	94.9	122.3	3510	96,000	
8/14	30		258.6	181.9	3510	269,000	Aged supernate
		13	170.4	231.3	3500	280,000	
8/14	43		352.5	329.6	3510	80,000	Concentrated supernate
		38	122.3	146.6	3510	85,000	
8/20	24		11.5	4.1	3540	31,000	Tk. 24 spray washing
		38	146.8	156.1	3510	33,000	

¹ A portion of this transfer, dated 6/19, was included in the June monthly report. 62,000 gallons sent from tank 47 and 64,000 gallons received in tank 26 are included in this report period.

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
08/22	47		353.8	319.6	3510	166,000	Concentrated supernate
		26	292.9	317.3	3510	172,000	
08/25	47		326.5	281.1	3510	206,000	Concentrated supernate
		26	307.8	341.0	3510	214,000	
09/3	25		346.6	302.0	3510	185,000	Concentrated supernate
		26	241.2	265.4	3510	193,000	
09/8	47		350.5	241.7	3510	596,000	Concentrated supernate
		26	265.2	345.0	3510	625,000	
09/19	25		352.9	301.1	3510	220,000	Concentrated supernate
		26	223.0	249.7	3510	230,000	
H-Area							
08/26	36		361.7	273.1	2775	246,000	Concentrated supernate
		13	192.0	257.7	3510	265,000	
08/23	24		11.6	2.6	3540	32,000	Spray wash
		30	156.1	165.6	3510	34,000	
09/6	30		180.1	120.1	3510	211,000	Aged HHW supernate
		13	184.9	233.5	3500	219,000	
09/16	37		359.0	238.0	3340	404,000	Concentrated supernate
		30	120.1	246.7	3510	443,000	
09/18	41		327.7	292.6	3510	141,000	Concentrated supernate
		43	201.8	234.4	3510	150,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
09/23	18		341.3	242.0	3540	352,000	Supernate
		26	235.6	310.9	3510	352,000	
09/25	47		351.6	290.5	3510	298,000	Concentrated supernate
		26	279.7	345.0	3510	310,000	
10/4	47		328.6	296.2	3510	126,000	Concentrated supernate
		26	272.2	303.3	3510	131,000	
10/7	47		296.9	241.4	3510	239,000	Concentrated supernate
		26	303.4	344.9	3510	249,000	
10/13	25		352.5	285.1	3510	282,000	Concentrated supernate
		26	304.9	340.7	3510	293,000	
10/15	17		29.1	1.5	3540	117,000	Waste removal/spray wash
		18	243.5	276.5	3540	117,000	
H-Area							
09/22	41		292.6	218.2	1840	151,400	Concentrated supernate
		43	234.4	270.3	3510	157,500	
09/25	36		358.6	279.7	3295	260,000	Concentrated supernate
		13	175.4	224.6	3500	270,400	
10/7	30		245.9	142.5	3510	362,900	Concentrated supernate
		13	174.8	254.9	3500	377,400	

^aAdjusted to account for all process flows to or from the tanks during transfer;
values for receiving tanks include jet dilution.

INTERTANK TRANSFERS

1985 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
10/21	28		348.3	291.1	3510	202,000	Concentrated supernate
	26		254.6	334.6	3510	210,000	
10/29	47		345.6	245.1	3510	451,000	Concentrated supernate
	26		254.6	334.6	3510	469,000	
11/1	25		358.1	355.0	3510	21,000	Concentrated supernate
	26		297.2	294.2	3510	22,000	
11/15	25		358.9	287.6	3510	325,000	Concentrated supernate
	26		214.1	331.5	3510	338,000	
11/13	47		336.7	246.4	3510	459,000	Concentrated supernate
	26		210.3	310.2	3510	477,000	
11/18	7		262.7	239.7	3510	64,000	Concentrated supernate
	26		330.1	311.2	3510	67,000	
11/25	7		244.1	215.3	3510	80,000	Concentrated supernate
	26		266.3	252.9	3510	83,000	
H-Area							
11/9	41		340.6	270.8	3510	304,000	Concentrated supernate
	43		128.0	197.4	3510	318,000	

incorrect

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^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5
INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
1/6	25		347.0	280.5	3510	296,000	Concentrated supernate
		26	196.0	224.8	3510	308,000	
1/9	47		349.9	303.8	3510	226,000	Concentrated supernate
		26	224.6	256.3	3510	235,000	
1/20	47		336.2	255.0	3510	410,000	Concentrated supernate
		26	194.7	252.9	3510	427,000	
1/27	18		334.7	242.8	3540	325,000	LLW supernate
		26	197.8	246.8	3510	325,000	
H-Area							
1/10	33F		355.1	246.1	3510	383,000	Aged high-heat waste
		30H	143.6	256.4	3510	396,000	
1/11	33F		246.1	217.3	3510	101,000	Aged high-heat waste
		13H	157.3	186.9	3510	104,000	
1/13	33F		217.3	145.3	3510	253,000	Aged high-heat waste
		30H	256.4	333.8	3510	261,000	
1/16	36		342.5	331.2	3510	53,000	Concentrated supernate
		13	173.1	180.2	3510	57,000	
1/21	36		335.1	294.6	3510	214,000	Concentrated supernate
		13	175.1	217.0	3510	226,000	
1/23	36		294.6	259.9	3510	122,000	Concentrated supernate
		13	217.0	253.2	3510	127,000	
1/26	41		333.4	281.7	3510	227,000	Concentrated supernate
		43	102.1	150.9	3510	234,000	
1/31	22		373.3	370.1	3510	11,000	Supernate
		32	308.5	311.8	3510	11,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

86 te	<u>Tanks</u>		<u>Liq Level (in)</u>		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	<u>Type or Origin of Waste</u>
	<u>From</u>	<u>To</u>	<u>Initial</u>	<u>Final</u>			
					<u>F-Area</u>		
3	25		357.9	288.5	3510	319,000	Concentrated supernate
	26		230.7	270.9	3510	332,000	
10	47		355.1	248.0	3510	551,000	Concentrated supernate
	26		270.6	346.4	3510	573,000	
18	25		324.8	291.4	3510	155,000	Concentrated supernate
	26		293.0	293.2	3510	161,000	
27	47		334.6	242.6	3510	485,000	Concentrated supernate
	26		255.9	317.1	3510	504,000	
					<u>H-Area</u>		
11	38		167.6	94.0	3510	258,000	Misc. and Waste Removal
13	43		105.2	164.7	3510	268,000	
4	22		370.4	270.3	3540	354,000	Supernate
	13				3500	9,000	
8	38		94.4	192.6	3510	345,000	
5	41		358.0	285.2	3510	303,000	Concentrated Supernate
8	43		120.5	185.7	3510	316,000	
0	37		352.6	302.2	3510	166,000	Concentrated Supernate
3	13		172.7	217.4	3500	173,000	
5	41		333.4	328.2	3510	95,000	Concentrated Supernate
8	43		118.0	200.0	3510	99,000	
6	38		193.1	112.9	3510	281,000	Supernate
8	43		127.3	200.0	3510	292,000	
6	36		346.0	313.3	3510	114,000	Concentrated Supernate
8	13		195.2	228.9	3510	118,000	

justed to account for all process flows to or from the tanks during transfer;
 lues for receiving tanks include jet dilution.

TABLE WM-7

INTERTANK TRANSFERS

Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
3/86	25		327.5	295.5	3510	147,000	Concentrated supernate
		26	294.8	298.1	3510	153,000	
4/14	47		337.3	257.1	3510	363,000	Concentrated supernate
		26	229.8	350.1	3510	377,000	
5/15	18		242.2	182.5	3540	211,000	LLW supernate
		26	278.6	252.3	3510	211,000	
6/24	20		184.1	87.5	3540	307,000	LLW supernate
		18	182.7	273.7	3540	321,000	
7/25	25		345.4	314.5	3510	129,000	Concentrated supernate
		26	243.7	257.4	3510	135,000	
8/31	47		352.4	276.3	3510	417,000	Concentrated supernate
		26	249.8	312.7	3510	434,000	
H-Area							
9/1*	38		112.9	93.2	3510	69,000	Supernate
		43	200.0	231.8	3510	72,000	
10/2	36		313.3	293.7	3510	68,000	Concentrated Supernate
		13	228.9	250.5	3500	71,000	
11/2*	41		328.2	288.2	3510	190,000	Concentrated Supernate
		43	200.0	258.9	3510	197,000	
12/17	41		331.7	295.5	3510	180,000	Concentrated supernate
		43	203.0	234.6	3510	188,000	

Adjusted to account for all process flows to or from the tanks during transfer;
values for receiving tanks include jet dilution.

Transfer continued from last month.

TABLE WM-5

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
4/7	18		272.3	183.7	3540	314,000	LLW supernate
		26	270	332.2	3510	314,000	
4/9	47		352.8	321.6	3510	178,000	Concentrated supernate
		26	286.2	305.1	3510	185,000	
4/11	25		355.2	324.6	3510	143,000	Concentrated supernate
		26	292.3	322	3510	149,000	
4/13	47		338.1	311.6	3510	143,000	Concentrated supernate
		26	322	349.4	3510	149,000	
4/21	47		345.3	275.3	3510	374,000	Concentrated supernate
		26	309.5	344.4	3510	389,000	
4/24	25		353.3	312	3510	226,000	Concentrated supernate
		26	341.5	349.7	3510	235,000	
4/27	25		322.4	311.5	3510	65,000	Concentrated supernate
		26	324	321	3510	68,000	
H-Area							
4/08	41		355.2	301.6	3510	264,000	Concentrated supernate
		43	158.9	213.2	3510	275,000	
4/18	29		357.6	336.5	3510	74,000	Supernate
		30	333.8	356.0	3510	77,000	
4/20	41		359.7	321.0	3510	171,000	Concentrated Supernate
		43	133.3	171.2	3510	178,000	
4/25	21		333.0	326.6	3540	22,000	Supernate
		38	95.6	101.9	3510	22,000	
4/26	41		348.2	326.3	3510	121,000	Concentrated Supernate
		43	138.7	161.1	3510	126,000	
4/30	21		326.6	301.1	3540	90,000 ^b	Supernate
		38	102.2	126.6	3510	86,000	

^aAdjusted to account for all process flows to or from the tanks during transfer;
values for receiving tanks include jet dilution.

^bTransfer still in progress

TABLE WM-5

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
5/3	47		354	285.1	3510	386,000	Concentrated supernate
	26		275.1	330.8	3510	401,000	
5/6	25		340.2	313	3510	160,000	Concentrated supernate
	26		329.2	337.1	3510	167,000	
5/11	47		332.8	298.8	3510	175,000	Concentrated supernate
	26		287.7	310.3	3510	182,000	
5/16	25		360.7	325.6	3510	198,000	Concentrated supernate
	26		276.4	334.3	3510	206,000	
5/17	27		226.9	167.1	3510	210,000	Concentrated supernate
	26		275.5	338.8	3510	218,000	
5/18	47		344.4	318.8	3510	138,000	Concentrated supernate
	26		336.7	348.2	3510	143,000	
5/22	25		351.3	318.1	3510	189,000	Concentrated supernate
	26		326.4	335	3510	196,000	
5/24	47		352.7	322.9	3510	148,000	Concentrated supernate
	26		326.7	340.5	3510	154,000	
5/30	47		346.6	304.9	3510	221,000	Concentrated supernate
	26		305.0	340.0	3510	230,000	
H-Area							
5/1 ^b	21		301.1	150.1	3540	535,000	Supernate
	38		126.6	192.4	3510	535,000	
5/1	38		152.3	160.7	3510	326,000	Supernate
	43		131.7	223.0	3510	339,000	
5/2	41		355.9	331.7	3510	139,000	Concentrate
	43		156.8	234.6	3510	145,000	
5/6	22		277.4	239.4	3540	144,000	Supernate
	38		192.4	233.3	3510	144,000	

TABLE WM-5

INTERTANK TRANSFERS (cont'd)

Date	Tanks		Liq Level (in)		Tk Calibration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
					H-Area		
9/9	41		356.9	307.8	3510	196,000	Concentrate
9/12		43	206.3	353.4	3510	204,000	GAS out
9/9	38		233.3	140.0	3510	300,000	Supernate
9/12		43	211.6	348.8	3510	312,000	
9/12	36		355.1	343.8	3510	90,000	Concentrate
9/15		13	165.3	173.4	3500	93,000	
9/13	22		239.3	142.0	3540	9,000	Supernate
		38	142.0	144.8	3510	9,000	
9/15	22		237.1	130.7	3540	377,000	Supernate
9/17		38	130.7	144.8	3510	377,000	
9/18	36		355.8	280.8	3510	523,000	Concentrate
9/31		13	159.2	227.6	3500	544,000	
9/30	41		348.8	331.5	3510	69,000	Concentrate
9/31 ^c		43	282.9	301.2	3510	72,000	INcomplete Transfer

^aAdjusted to account for all process flows to or from the tanks during transfer;
values for receiving tanks include jet dilution.

^bTransfer continued from April.

^cTransfer continues into June.

TABLE WM-5

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
6/9	45		343.7	284.1	3510	209,000	Concentrated supernate
	26		242.5	280.4	3510	217,000	
6/13	47		359.4	357.9	3510	5,300	Concentrated supernate
	26		254.7	255.8	3510	5,500	
6/26	25		341.3	318.2	3510	81,000	Concentrated supernate
	26		172.6	193	3510	84,000	
H-Area							
6/1 ^b	41		331.5	308.4	3510	94,000	Concentrate
6/2	43		301.2	328.0	3510	98,000	
6/1 ^b	36		280.8	261.1	3510	152,000	Concentrate
6/5	13		227.6	243.3	3500	158,000	
6/11	30		356.1	334.7	3510	75,000	Supernate
6/11	13		204.7	222.8	3500	78,000	
6/14	30		334.7	277.7	3510	200,000	Supernate
6/16	13		211.0	254.9	3500	208,000	
6/23	30		277.1	236.8	3510	141,000	Supernate
6/24	13		215.8	250.0	3500	147,000	
6/24	21		152.8	124.4	3540	100,000	Supernate
6/24	22		137.5	165.5	3540	100,000	
6/25	10		140.3	129.1	2710	30,000	Supernate
6/27	43		317.8	315.9	3510	31,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^bTransfer is continued from May.

^cTransfer was not continuous due to conflicting work near transfer lines.

TABLE WM-5 (Cont'd)

INTERTANK TRANSFERS

<u>1986 Date</u>	<u>Tanks</u>		<u>Liq Level (in)</u>		<u>Tk Cali- bration, (gal/in)</u>	<u>Gallons Transfer^a</u>	<u>Type or Origin of Waste</u>
	<u>From</u>	<u>To</u>	<u>Initial</u>	<u>Final</u>			
			<u>H-Area (Cont'd)</u>				
6/25	10		140.3	129.1	2710	30,000	Supernate
6/27		43	317.8	315.9	3510	31,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^bTransfer is continued from May.

^cTransfer was not continuous due to conflicting work near transfer lines.

TABLE WM-4

INTERTANK TRANSFERS

1986 Date	Tanks From To		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
			Initial	Final	F-Area		
7/4	45	26	324.6 172.2	250 223.2	3510 3510	298,000 310,000	Concentrated supernate
7/8	25	26	320.7 151.2	314.6 151	3510 3510	30,000 32,000	Concentrated supernate
7/9	28	26	343.3 149.1	299.6 176.6	3510 3510	153,000 160,000	Concentrated supernate
7/10	18F	51H	210.5 18.3	135.1 103.7	3540 3510	270,000 300,000	Sludge slurry (WR) ^b
7/14	27	26	360.4 149.2	291.2 173.1	3510 3510	308,000 320,000	Concentrated supernate
7/16	27	26	291.1 161.5	273 168.4	3510 3510	80,000 83,000	Concentrated supernate
7/20	20	18	219.7 134.8	49 161.7	3540 3540	604,000 628,000	Sat. salt soln. (WR) ^b
7/20	45	26	351.1 183.5	234.5 325.2	3510 3510	494,000 514,000	Concentrated supernate
7/21	18	26	193.5 165.8	150 341.4	3540 3510	589,000 589,000	Sat. salt soln. (WR) ^b
7/22	47	26	361.6 323.0	351.5 333.2	3510 3510	35,000 37,000	Concentrated supernate
7/26	25	26	351.3 319.6	317.6 323.1	3510 3510	152,000 158,000	Concentrated supernate
H-Area							
6/30	10		129.0	120.2	2710	41,000	Supernate
7/4	43		292.7	332.5	3510	43,000	21 3%.
7/1	41		350.7	309.7	3510	177,000	Concentrate 43910 gal.
7/4	43		288.7	332.5	3510	184,000	+ 34517 gal.
7/4	36		356.9	288.3	3510	240,000	Concentrate 178227.
7/7	13		200.3	259.3	3500	250,000	
7/7	18F		210.5	134.9	3540	270,000	Sludge slurry (WR) ^b
7/10	51H		18.3	103.7	3510	300,000	

TABLE WM-4

INTERTANK TRANSFERS (cont'd)

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in) H-Area	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
7/14	41	43	352.9 269.0	309.8 314.7	3510 3510	206,000 215,000	Concentrate ^{73.4%} 151,281 gal 34595
7/17	22	51	155.3 104.2	58.1 204.6	3540 3510	344,000 352,000	Sludge slurry (WR) ^b 18581
7/21	38	43	252.6 291.3	202.7 330.7	3510 3510	175,000 182,000	Supernate
7/21	30	13	236.8 194.1	186.3 234.1	3510 3500	177,000 184,000	Supernate
7/25	41	43	342.5 319.0	320.6 340.0	3510 3510	98,000 102,000	Concentrate ^{75.1%} 1086 gal 22071
7/28	37	13	356.4 234.5	321.7 259.1	3510 3500	117,000 122,000	Concentrate 111502

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^bWR = waste removal program.

TABLE WM-5

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
8/1	45		344.3	270.9	3510	333,000	Concentrated supernate
	26		297.1	334.7	3510	346,000	
8/8	47		352.7	304.1	3510	171,000	Concentrated supernate
	26		268.1	300	3510	177,000	
8/11	20		90.4	68.2	3540	79,000	Sat. salt soln.
	18		156.3	179.7	3540	82,000	
8/18	25		359.6	347.1	3540	111,000	Concentrated supernate
	26		203.2	244.7	3510	115,000	
8/21	45		361.1	325	3510	173,000	Concentrated supernate
	26		242.7	281.3	3510	180,000	
3/21	27		354.8	248.9	3510	415,000	Concentrated supernate
	26		219.5	275.1	3510	431,000	
11/27	18F		183.1	102.7	3540	282,000	Sludge slurry
	51H		212.8	301.7	3510	312,000	
12/21	45		351.1	234.5	3510	494,000	Concentrated supernate
	26		183.5	325.2	3510	514,000	
12/27	47		358.9	300	3510	207,000	Concentrated supernate
	26		236.5	271.5	3510	215,000	
1/31	20		69.4	37.9	3540	115,000	Sat. salt soln.
	18		102.9	139.1	3540	120,000	
2/31	45		360.8	272	3510	312,000	Concentrated supernate
	26		229.5	282	3510	324,000	
H-Area							
3/1	41		347.6	310.7	3510	182,000	Concentrated supernate
	43		304.7	340.0	3510	190,000	
4/1	36		355.4	310.8	3510	157,000	Concentrated supernate
	13		220.5	259.0	3500	163,000	

TABLE WM-5 (Cont'd)

INTERTANK TRANSFERS

1986 Date	<u>Tanks</u>		<u>Liq Level (in)</u>		Tk Cali- bration, (gal/in) <u>H-Area</u>	<u>Gallons Transfer^a</u>	<u>Type or Origin of Waste</u>
	<u>From</u>	<u>To</u>	<u>Initial</u>	<u>Final</u>			
8/11	41		347.8	311.8	3510	176,000	Concentrated supernate
		43	293.3	334.6	3510	183,000	
8/11	10		119.2	99.3	2710	54,000	Supernate
		43	335.6	320.3	3510	56,000	
8/12	30		186.2	154.1	3510	113,000	Supernate
		32	318.7	352.4	3510	118,000	
8/13	37		355.7	322.6	3510	111,000	Concentrated supernate
		13	221.8	234.3	3500	115,000	
8/16	30		153.8	141.9	3510	42,000	Supernate
		35	348.5	361.0	3510	44,000	
8/18	30		141.9	124.5	3510	61,000	Supernate
		13	218.2	230.0	3500	63,000	
8/21	36		358.0	321.1	3510	166,000	Concentrated supernate
		13	219.1	241.1	3500	173,000	
8/23	41		355.0	313.0	3510	243,000	Concentrated supernate
		43	290.1	332.5	3510	253,000	
8/23	18		183.1	102.7	3540	285,000	Sludge slurry
		51	210.7	301.7	3510	319,000	
8/25	37		360.3	318.4	3510	138,000	Concentrated supernate
		13	236.9	257.8	3500	143,000	
8/28	39		360.9	283.1	3510	273,000	Fresh HHW supernate
		30	124.5	205.0	3510	283,000	
8/29	23		320.3	297.3	3540	81,000	RBOF
		22	73.3	97.6	3540	85,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^bContinues to next month. Gallons transferred are as of August 31 at 10:00 p.m.

TABLE WM-6

INTERTANK TRANSFERS

1986 Comple- tion Date	<u>Tanks</u>		<u>Liq Level (in)</u>		Tk Cali- bration, (gal/in) F-Area	Gallons Transfer ^a	<u>Type or Origin of Waste</u>
	<u>From</u>	<u>To</u>	<u>Initial</u>	<u>Final</u>			
9/2	25	26	365.1 261.5	361.5 275.6	3510 3510	13,000 13,000	Concentrated supernate
9/4	25	26	361.5 263.1	340.8 279.3	3510 3510	73,000 76,000	Concentrated supernate
9/7	18F	51H	139.9 301.5	85.7 359.0	3540 3510	196,000 201,000	Sludge slurry
9/6	25	26	341.4 274.9	318.9 283.4	3510 3510	79,000 82,000	Concentrated supernate
9/9	20	18	39.1 86.5	4.0 124.1	3540 3540	125,000 130,000	Salt solution
9/12	47	26	358.5 220.6	282.0 247.6	3510 3510	270,000 280,000	Concentrated supernate
9/16	28	26	306.4 194.1	291.1 196.8	3510 3510	54,000 56,000	Concentrated supernate
9/17	18F	42H	157.1 69.7	94.9 142.5	3540 3510	222,000 255,000	Sludge slurry
9/18	44	26	300.3 195.4	244.0 229.7	3510 3510	198,000 206,000	Concentrated supernate
9/21	45	26	353.3 207.7	271.8 259.8	3510 3510	286,000 298,000	Concentrated supernate
9/18	20	18	31.1 94.4	20.6 106.5	3540 3540	37,000 39,000	Inhibited water
9/20	20	18	21.0 107.1	0.0 144.5	3540 3540	75,000 78,000	Inhibited water
9/23	18F	42H	149.3 240.9	72.1 334.6	3540 3510	277,000 329,000	Sludge slurry
9/25	27	26	360.2 253.6	339.9 240.4	3510 3510	98,000 102,000	Concentrated supernate

TABLE WM-6

INTERTANK TRANSFERS (cont'd)

1986 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area (cont'd)							
9/26	20	18	44.8 74.2	0.5 124.4	3540 3540	171,000 178,000	Inhibited water
9/28	25	26	348.7 217.2	319.2 232.9	3510 3510	104,000 108,000	Concentrated supernate
9/28	7	26	263.5 228.1	260.8 225.2	2710 3510	7,000 8,000	LLW supernate
10/2 ^c	18F	40H	124.5 45.3	85.3 93.0	3540 3510	141,000 167,000	Sludge slurry
10/3 ^c	47	26	360.7 205.3	339.0 209.1	3510 3510	76,000 79,000	Concentrated supernate
H-Area							
9/7 ^b	39	30	283.1 205.0	137.0 362.3	3510 3510	514,000 543,000	Fresh HHW supernate
9/7	18	51	139.9 301.6	85.7 359.0	3540 3510	192,000 201,000	Sludge slurry
9/9	36	13	359.6 210.7	330.0 216.6	3510 3500	112,000 116,000	Concentrated supernate
9/11	41	43	357.9 274.0	313.1 316.2	3510 3510	217,000 226,000	Concentrated supernate
9/12	37	13	359.9 216.6	311.4 242.3	3510 3500	168,000 175,000	Concentrated supernate
9/17	18	42	157.1 69.7	90.5 142.5	3540 3510	236,000 255,000	Sludge slurry
9/19	41	43	346.4 275.9	316.33 305.4	3510 3510	138,000 143,000	Concentrated supernate
9/22	36	13	359.7 200.2	301.5 235.8	3510 3500	211,000 220,000	Concentrated supernate

TABLE WM-6

INTERTANK TRANSFERS (cont'd)

Completion Date	Tanks		Liq Level (in)		Tk Calibration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
					H-Area (cont'd)		
8/20	21		131.3	33.5	3540	345,000	Sludge slurry
		42	142.5	240.9	3510	345,000	
8/23	51		358.4	300.2	3510	204,000	Supernate
		43	294.8	336.2	3510	212,000	
8/22	22		95.3	48.6	3540	165,000	Supernate
		21	34.0	80.8	3540	165,000	
8/23	18		149.3	72.1	3540	273,000	Sludge slurry
		42	240.9	334.6	3510	329,000	
8/25	21		84.0	57.5	3540	93,000	Sludge slurry
		42	334.6	361.1	3510	93,000	
8/27	21		57.5	7.3	3540	174,000	Sludge slurry
		51	300.2	349.1	3510	174,000	
8/28	22		53.0	5.9	3540	158,000	Sludge slurry
		40	0	45.1	3510	158,000	
8/29	41		360.2	329.4	3510	154,000	Concentrated supernate
		43	317.0	348.1	3510	160,000	
8/30	18		124.5	85.3	3540	139,000	Sludge slurry
		40	45.3	93.0	3510	167,000	

adjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

Continued from last month. Gallons transferred are as of August 31 at 10 p.m.

Continues to next month. Gallons transferred are as of September 30 at 10 p.m.

TABLE WM-5

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
10/2 ^A	18F		85.3	53.5	3,540	145,000	Sludge slurry
	40H		93.0	149.1	3,510	197,000	
10/3 ^A	47		339.0	290.4	3,510	171,000	Concentrated supernate
	26		209.1	252.3	3,510	177,000	
10/1	27		354.0	353.1	3,510	4,000	Concentrated supernate
	26		206.8	216.7	3,510	4,000	
10/1	20		12.3	0.0	3,540	31,000	Inhibited water
	18		85.3	75.3	3,540	32,000	
10/5	45		349.8	284.3	3,510	240,000	Concentrated supernate
	26		248.1	309.7	3,510	250,000	
10/6	25		334.5	319.4	3,510	85,000	Concentrated supernate
	26		266.7	306.5	3,510	88,000	
10/11	25		332.1	319.5	3,510	70,000	Concentrated supernate
	26		263.8	266.1	3,510	73,000	
10/18	47		362.2	275.0	3,510	307,000	Concentrated supernate
	26		213.7	235.6	3,510	319,000	
10/18	18F		79.5	43.6	3,540	129,000	Sludge slurry
	42H		285.0	334.8	3,510	175,000	
10/26	27		358.7	197.1	3,510	619,000	Concentrated supernate
	26		207.7	349.9	3,510	643,000	
10/25	25		358.8	319.4	3,510	138,000	Concentrated supernate
	26		251.6	324.9	3,510	144,000	
H-Area							
10/1 ^b	18		85.3	53.5	3,540	145,000	Sludge slurry
	40		93.0	149.1	3,510	197,000	
10/3	36		354.7	292.2	3,510	235,000	Concentrate
	13		178.2	244.4	3,500	244,000	

^AContinued from last month. Initial levels are as of 10 p.m., 9/30/86.

^bContinued from last month.

TABLE WM-5 (Cont'd)

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in) H-Area	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
10/6	41		352.7	323.2	3,510	126,000	Concentrate
		43	320.0	349.6	3,510	131,000	
10/12	42		357.9	285.0	3,510	256,000	Supernate
		40	153.3	229.4	3,510	267,000	
10/13	41		348.2	317.3	3,510	105,000	Concentrate
		43	320.1	343.8	3,510	109,000	
10/14	32		352.8	312.8	3,510	140,000	HHW supernate
		13	158.3	219.9	3,500	146,000	
10/16	21		30.4	5.5	3,540	80,000	Sludge slurry
		22	5.4	28.2	3,540	80,000	
10/17	18		79.5	43.6	3,540	129,000	Sludge slurry
		42	285.0	334.8	3,510	175,000	
10/17	36		354.5	333.2	3,510	113,000	Concentrate
		13	214.4	231.7	3,500	117,000	
10/20	41		355.7	316.9	3,510	197,000	Concentrate
		43	301.0	339.4	3,510	205,000	
10/22	37		356.9	320.8	3,510	203,000	Concentrate
		13	211.4	233.0	3,500	211,000	
10/25	42		334.6	313.8	3,510	73,000	Supernate
		43	334.3	350.0	3,510	76,000	
10/25	42		313.8	284.9	3,510	101,000	Supernate
		40	229.0	259.8	3,510	108,000	
10/27	23		363.8	322.7	3,540	192,000	RBOF supernate
		24	3.5	49.8	3,540	199,000	

^aAdjusted to account for all process flows to or from the tanks during transfer;
values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

1986 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
11/3	18F	42H	71.7	44.0	3540	100,000	Sludge slurry
			284.9	331.0	3510	162,000	
11/3	45	26	355.3	280.5	3510	263,000	Concentrated supernate
			272.5	314.4	3510	273,000	
11/6	25	26	343.3	319.4	3510	84,000	Concentrated supernate
			291.0	303.0	3510	87,000	
11/12	18F	42H	57.7	38.1	3540	71,000	Sludge slurry
			298.6	330.8	3510	113,000	
11/12	47	26	354.2	296.2	3510	204,000	Concentrated supernate
			219.1	263.7	3510	212,000	
11/18	45	26	354.2	274.4	3510	280,000	Concentrated supernate
			210.0	253.1	3510	291,000	
11/22	18F	40H	61.9	29.8	3540	115,000	Sludge slurry
			272.2	317.4	3510	159,000	
11/24	25	26	335.4	319.9	3510	54,000	Concentrated supernate
			196.3	202.0	3510	57,000	
11/27	47	26	354.1	286.7	3510	237,000	Concentrated supernate
			187.4	233.0	3510	246,000	
H-Area							
11/1	36	13	355.6	323.6	3510	99,000	Concentrate
			204.0	223.8	3500	103,000	
11/3	18F	42H	71.7	44.3	3540	100,000	Sludge slurry
			284.9	331.0	3510	162,000	
11/4	41	43	354.4	317.5	3510	168,000	Concentrate
			306.8	342.5	3510	175,000	
11/4	32	13	313.2	303.4	3510	34,000	HHW supernate
			211.7	217.6	3500	35,000	
11/6	37	13	354.4	303.2	3510	268,000	Concentrate
			206.5	244.5	3500	279,000	

TABLE WM-6

INTERTANK TRANSFERS (cont'd)

1986 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
H-Area (cont'd)							
11/10	42		330.9	310.9	3510	70,000	Supernate
		43	306.7	322.0	3510	73,000	
11/11	42		310.9	298.6	3510	44,000	Supernate
		40	259.5	292.8	3510	46,000	
11/11	41		354.7	329.8	3510	136,000	Concentrate
		43	319.2	346.4	3510	141,000	
11/12	18F		57.7	43.3	3540	71,000	Sludge slurry
		42H	298.6	330.8	3510	113,000	
11/12	32		303.2	287.3	3510	56,000	HHW supernate
		13	241.2	251.0	3500	58,000	
11/17	41		348.1	318.6	3510	114,000	Concentrate
		43	316.7	344.9	3510	119,000	
11/19	36		356.6	296.8	3510	247,000	Concentrate
		13	203.0	249.4	3500	257,000	
11/22	18F		61.9	39.0	3540	115,000	Sludge slurry
		40H	272.2	317.4	3510	159,000	
11/25	32		287.2	257.2	3510	105,000	HHW supernate
		13	243.5	258.1	3500	109,000	
11/27	41		357.8	320.8	3510	161,000	Concentrate
		43	300.6	334.9	3510	167,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-8

INTERTANK TRANSFERS

Date	Tanks		Liq Level (in)		Tk Calibration, (gal/in)	Gallons Transfer	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
2/2	18F		45.1	20.3	3,540	89,000	Sludge slurry
	40H		317.4	351.9	3,510	121,000	
2/5	20		27.9	3.4	3,540	87,000	Inhibited water
	18		31.1	48.3	3,540	91,000	
2/6	27		337.0	292.6	3,510	156,000	Concentrated supernate
	26		199.5	240.2	3,510	143,000	
2/8	27		292.6	240.8	3,510	182,000	Concentrated supernate
	26		240.4	279.7	3,510	189,000	
2/16	45		351.2	268.3	3,510	291,000	Concentrated supernate
	26		246.8	306.3	3,510	303,000	
2/20	18F		55.5	18.5	3,540	133,000	Sludge slurry
	40H		231.0	276.4	3,510	159,000	
2/22	47		352.3	283.4	3,510	242,000	Concentrated supernate
	26		249.7	270.6	3,510	252,000	
2/24	25		343.5	319.0	3,510	86,000	Concentrated supernate
	26		255.1	274.4	3,510	89,000	
2/29	45		355.3	268.6	3,510	398,000	Concentrated supernate
	26		235.3	293.0	3,510	414,000	
2/30	7		263.5	253.1	2,710	28,000	LHW supernate
	26		274.6	276.7	3,510	29,000	
2/30	18F		33.0	13.5	3,540	70,000	Sludge slurry
	40H		276.1	303.5	3,510	96,000	
H-Area							
2/1	18		45.1	31.1	3,540	50,000	Sludge slurry
2/2	40		317.4	341.9	3,510	86,000	
2/2	37		359.5	324.0	3,510	122,000	Concentrate
2/6	13		241.2	255.1	3,500	127,000	
2/5	41		348.7	321.4	3,510	124,000	Concentrate
2/7	43		311.3	335.7	3,510	129,000	

TABLE WM-8 (Cont'd)

INTERTANK TRANSFERS

1986 Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in) H-Area	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
12/4	51		347.4	340.9	3,510	23,000	Supernate
12/5		43	304.9	312.2	3,510	24,000	
12/7	51		340.9	322.7	3,510	64,000	Supernate
12/7		43	335.0	348.9	3,510	67,000	
12/10	40		341.7	306.6	3,510	123,000	Supernate
12/11		51	322.3	358.8	3,510	128,000	
12/11	40		306.6	277.8	3,510	101,000	Supernate
12/12		42	330.4	360.8	3,510	106,000	
12/12	40		277.8	231.0	3,510	164,000	Supernate
12/14		43	315.6	347.8	3,510	171,000	
12/17	10		97.8	92.0	2,710	16,000	Supernate
12/18		43	323.2	318.8	3,510	22,000	
12/19	18		55.5	25.1	3,540	108,000	Sludge slurry
12/20		40	231.0	276.4	3,510	159,000	
12/19	41		356.0	323.3	3,510	138,000	Concentrate
12/21		43	312.7	343.7	3,510	143,000	
12/19	36		354.5	302.8	3,510	181,000	Concentrate
12/22		13	229.1	256.6	3,500	188,000	
12/26	41		359.2	324.7	3,510	138,000	Concentrate
12/28		43	308.8	337.0	3,510	143,000	
12/26	32		256.9	232.1	3,510	87,000	Aged waste
12/27		13	223.0	241.6	3,500	90,000	
12/27	37		358.1	323.7	3,510	118,000	Concentrate
12/30		13	240.9	254.9	3,500	123,000	
12/29	18		33.0	21.1	3,540	42,000	Sludge slurry
12/30		40	276.1	303.5	3,510	96,000	
12/30	51		359.1	340.3	3,510	66,000	Supernate
12/31		43	319.1	335.0	3,510	69,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
1/5	7	26	253.1 262.6	118.1 291.0	2710 3510	366,000 380,000	LHW supernate
1/9	25	26	354.8 238.6	332.2 272.1	3510 3510	79,000 82,000	Concentrated supernate
1/9	45	26	347.5 241.8	324.6 272.1	3510 3510	80,000 84,000	Concentrated supernate
1/9	18F 40H		30.1 304.6	13.7 328.1	3540 3510	59,000 82,000	Sludge slurry
1/10	25	26	332.3 272.1	320.8 297.1	3510 3510	40,000 42,000	Concentrated supernate
1/10	45	26	325.5 272.1	306.9 296.9	3510 3510	72,000 75,000	Concentrated supernate
1/15	27	26	357.5 260.8	302.4 295.9	3510 3510	215,000 223,000	Concentrated supernate
1/17	27	26	302.4 295.9	255.8 324.7	3510 3510	164,000 170,000	Concentrated supernate
1/23	45	26	355.0 297.0	242.1 345.5	3510 3510	396,000 412,000	Concentrated supernate
1/27	18F 40H		30.1 328.1	9.9 356.6	3540 3510	73,000 100,000	Sludge slurry
1/31	47	26	355.4 292.0	285.3 310.3	3510 3510	246,000 256,000	Concentrated supernate
H-Area							
1/1	41		349.5	338.0	3510	50,000	Concentrate
1/2	43		331.4	342.0	3510	52,000	
1/2	36		357.0	303.9	3510	198,000	Concentrate
1/6	13		226.8	255.0	3500	206,000	
1/6	41		361.9	311.0	3510	171,000	Concentrate
1/8	43		311.0	340.3	3510	178,000	

TABLE WM-5

INTERTANK TRANSFERS (cont'd)

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
					H-Area (cont'd)		
1/9	18		30.1	13.5	3540	59,000	Sludge slurry
	40		304.6	328.1	3510	82,000	
1/9	32		231.8	205.4	3510	93,000	Aged HHW
1/10	13		235.8	254.4	3500	97,000	
1/12	21		18.0	6.0	3540	42,000	RBOF liquid
	22		28.1	40.1	3540	42,000	
1/14	41		360.0	325.8	3510	151,000	Concentrate
1/16	43		296.1	326.7	3510	157,000	
1/14	37		357.7	327.4	3510	106,000	Concentrate
1/16	13		231.4	248.4	3500	110,000	
1/16	23		371.3	359.7	3540	41,000	RBOF liquid
1/17	24		58.8	71.1	3540	44,000	
1/18	32		205.4	185.5	3510	70,000	Aged HHW
1/19	39		185.7	207.6	3510	77,000	
1/20	41		353.4	326.2	3510	121,000	Concentrate
1/22	43		300.6	324.4	3510	126,000	
1/23	21		14.5	4.9	3540	34,000	RBOF liquid
	22		40.4	49.9	3540	34,000	
1/21	36		354.7	311.5	3510	170,000	Concentrate
1/24	13		214.0	244.5	3500	177,000	
1/26	18		30.1	9.9	3540	72,000	Sludge slurry
1/27	40		328.1	356.6	3510	100,000	
1/26	37		360.6	311.2	3510	165,000	Concentrate
1/29	13		232.7	256.2	3500	172,000	
1/27	41		357.2	327.7	3510	136,000	Concentrate
1/30	43		287.1	312.1	3510	141,000	

TABLE WM-5

INTERTANK TRANSFERS (cont'd)

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
					H-Area (cont'd)		
1/30	51		340.1	317.9	3510	78,000	Supernate
1/31		43	308.1	330.3	3510	84,000	
1/23	23		360.5	250.8	3540	426,000	RBOF liquid
1/31		22	49.9	179.2	3540	458,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^bContinues to next month. Transfer volumes are as of 1/31 at 10 pm.

TABLE WM-5
INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
F-Area							
2/9	45		350.9	239.9	3,510	390,000	Concentrated supernate
		26	221.0	261.6	3,510	405,000	
2/12	25		354.9	316.8	3,510	176,000	Concentrated supernate
		26	248.2	266.4	3,510	183,000	
2/19	27		349.0	267.8	3,510	295,000	Concentrated supernate
		26	215.6	258.0	3,510	307,000	
2/21	25		349.7	321.6	3,510	109,000	Concentrated supernate
		26	235.5	249.1	3,510	114,000	
2/24	47		352.8	337.9	3,510	52,000	Concentrated supernate
		26	216.9	224.0	3,510	54,000	
2/28 ^b	47		338.1	310.8	3,510	115,000	Concentrated supernate
		26	200.4	233.6	3,510	119,000	
H-Area							
2/2 ^c 2/3	51		317.9	305.0	3,510	45,000	Supernate
		43	315.0	325.8	3,510	47,000	
2/1 ^c 2/4	23		250.8	209.3	3,540	161,000	RBOF/RRF
		22	179.2	227.0	3,540	169,000	
2/2 2/4	36		355.1	334.9	3,510	68,000	Concentrate
		13	221.8	229.9	3,500	71,000	
2/3 2/5	41		352.1	330.9	3,510	76,000	Concentrate
		43	323.5	346.3	3,510	86,000	
2/5 2/7	36		334.9	297.3	3,510	140,000	Concentrate
		13	221.6	249.0	3,500	146,000	
2/9 2/11	41		353.2	337.3	3,510	82,000	Concentrate
		43	319.7	338.0	3,510	92,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

^b2/28 transfer continues to next month. Transfer volumes as of 2/28 at 10:00 p.m..

^cTransfer started 1/23/87, but data taken from 1/31/87 at 11:00 p.m.

TABLE WM-5

INTERTANK TRANSFERS (cont'd)

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
					H-Area (cont'd)		
2/10	37		355.9	337.6	3,510	55,000	Concentrate
2/11		13	227.3	234.6	3,500	57,000	
2/14	41		351.2	337.1	3,510	66,000	Concentrate
2/15		43	319.1	332.6	3,510	71,000	
2/19	37		347.1	304.9	3,510	163,000	Concentrate
2/23		13	192.5	237.5	3,500	170,000	
2/20	42		362.5	359.6	3,510	10,000	Supernate
2/20		43	305.0	306.8	3,510	11,000	
2/20	21		9.5	6.9	3,540	10,000	RBOF/RRF
2/20		22	225.4	228.2	3,540	10,000	
2/20	41		360.1	341.4	3,510	105,000	Concentrate
2/22		43	305.1	329.8	3,510	122,000	
2/23	36		354.6	337.0	3,510	60,000	Concentrate
2/24		13	237.6	255.2	3,500	62,000	
2/24	41		352.8	339.1	3,510	66,000	Concentrate
2/25		43	314.1	328.4	3,510	74,000	
2/26	42		359.7	309.1	3,510	178,000	Supernate
2/28		51	304.9	358.0	3,510	186,000	
2/27	41		349.4	339.2	3,510	55,000	Concentrate
2/28		43	313.7	325.3	3,510	63,000	

TABLE WM-5
INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in) H-Area	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
3/3	42		309.1	294.1	3510	53,000	Supernate
3/3		43	311.6	323.5	3510	55,000	
3/4	41		355.6	347	3510	41,000	Concentrate
3/5		43	317.1	325.7	3510	44,000	
3/5	41		347.1	339.1	3510	75,000	Concentrate
3/6		43	326	333.2	3510	79,000	
3/6	42		294.1	280.9	3510	46,000	Supernate
3/8		26	226.9	226	3510	52,000	
3/6	36		352	314.6	3510	126,000	Concentrate
3/8		13	223.6	255.1	3500	131,000	
3/9	41		356.8	339.9	3510	78,000	Concentrate
3/10		43	310.2	333.8	3510	83,000	
3/10	51		357.9	342.9	3510	53,000	Supernate
3/11		43	327.3	342.5	3510	55,000	
3/11	42		280.9	260.8	3510	71,000	Supernate
3/12		26	206.1	232.7	3510	78,000	
3/14	41		354.9	341	3510	76,000	Concentrate
3/15		43	320.4	334.6	3510	83,000	
3/18	41		351.9	341.8	3510	50,000	Concentrate
3/19		43	320.2	331.3	3510	56,000	
3/22	41		354.1	342.7	3510	60,000	Concentrate
3/23		43	310.2	322.8	3510	67,000	
3/17	37		355.6	312	3510	228,000	Concentrate
3/23		13	192	212.8	3500	243,000	
3/26	21		11.8	5.5	3540	22,000	RBOF Waste
3/26		22	232	238.3	3540	22,000	
3/23	36		355.6	303.1	3510	182,000	Concentrate
3/27		13	208.4	240.3	3500	189,000	

^a Adjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution and transfer line flushing.

TABLE WM-5
INTERTANK TRANSFERS (cont'd)

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
H-Area (cont'd)							
3/26	41		354.9	347.2	3510	46,000	Concentrate
3/27		43	306.8	319	3510	67,000	
3/30	41		354.6	344.1	3510	60,000	Concentrate
3/31		43	303.5	316.6	3510	74,000	
F-Area							
3/1	47		310.8	291.3	3510	90,000	Conc. supernate
		26	233.6	240.0	3510	94,000	
3/6	45		353.8	294.8	3510	207,000	Conc. supernate
		26	216.7	231.7	3510	215,000	
3/8	42		294.1	280.9	3510	46,000	Supernate
		26	226.9	226.0	3510	52,000	
3/12	42		280.9	260.8	3510	71,000	Supernate
		26	206.5	232.7	3510	78,000	
3/12	27		328.2	304.0	3510	119,000	Conc. supernate
		26	202.5	233.8	3510	124,000	
3/14	47		337.8	308.6	3510	102,000	Conc. supernate
		26	216.4	236.6	3510	107,000	
3/14	27		311.0	283.4	3510	120,000	Conc. supernate
		26	216.4	246.1	3510	125,000	
3/19	45		345.5	344.0	3510	5,000	Conc. supernate
		26	219.3	234.3	3510	6,000	
3/30	45		330.2	290.3	3510	140,000	Conc. supernate
		26	207.2	241.5	3510	146,000	
3/31	45		290.5	267.1	3510	82,000	Conc. supernate
		26	241.7	257.0	3510	85,000	
3/31	27		349.3	337.9	3510	53,000	Conc. supernate
		26	257.1	272.2	3510	55,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution and transfer line flushing.

TABLE WM-5

INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in) F-Area	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
4/1	27		337.9	327.6	3,510	38,000	Concentrated supernate
		26	272.2	283.2	3,510	40,000	
4/3	27		327.8	298.3	3,510	126,000	Concentrated supernate
		26	283.0	299.3	3,510	131,000	
4/9	47		342.3	299.8	3,510	149,000	Concentrated supernate
		26	213.6	229.5	3,510	155,000	
4/12	27		347.0	267.7	3,510	299,000	Concentrated supernate
		26	216.9	270.3	3,510	311,000	
4/15	45		354.6	353.4	3,510	4,000	Concentrated supernate
		26	253.8	252.3	3,510	4,000	
4/22	47		349.8	299.0	3,510	249,000	Concentrated supernate
		26	222.0	257.3	3,510	259,000	
4/22	45		353.0	351.1	3,510	7,000	Concentrated supernate
		26	249.2	251.1	3,510	8,000	
4/26	45		351.0	270.9	3,510	281,000	Concentrated supernate
		26	232.7	267.3	3,510	292,000	
4/30	47		351.1	325.5	3,510	123,000	Concentrated supernate
		26	208.7	223.9	3,510	128,000	

TABLE WM-5 (cont'd)

INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks From To		Liq Level (in) <u>Initial</u> <u>Final</u>		Tk Cali- bration, (gal/in) H-Area	Gallons Transfer ^a	Type or Origin of Waste
4/4	41		355.1	344.7	3,510	56,000	
4/6		43	300.1	312.5	3,510	68,000	Concentrate
4/10	41		354.7	347.6	3,510	80,000	
4/13		43	295.5	300.6	3,510	91,000	Concentrate
4/10	37		356	304.4	3,510	181,000	
4/15		13	206.2	221.8	3,500	190,000	Concentrate
4/14	41		355	348.8	3,510	44,000	
4/16		43	294.5	321.6	3,510	46,000	Concentrate
4/15	40		357	336.6	3,510	72,000	
4/15		43	297.9	323.4	3,510	76,000	Supernate
4/17	36		354.2	303.4	3,510	169,000	Concentrate
4/21		13	206.3	230.1	3,500	176,000	
4/18	41		354.9	352.2	3,510	15,000	
4/18		43	313.6	320.7	3,510	31,000	Concentrate
4/24	37		358.7	301.6	3,510	195,000	
4/28		13	199.9	240.1	3,500	203,000	Concentrate

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution.

TABLE WM-5

INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
	F-Area						
5/2	47		325.5	294.0	3,510	149,000	Concentrated supernate
		26	223.9	245.9	3,510	155,000	
5/5	27		349.4	295.3	3,510	264,000	Concentrated supernate
		26	243.4	277.3	3,510	274,000	
5/15	47		339.2	317.6	3,510	136,000	Concentrated supernate
		26	223.3	220.7	3,510	142,000	
5/17	27		355.0	307.9	3,510	213,000	Concentrated supernate
		26	214.2	247.8	3,510	221,000	
5/24	47		354.4	335.5	3,510	110,000	Concentrated supernate
		26	247.8	282.2	3,510	114,000	
5/26	27		345.7	309.3	3,510	142,000	Concentrated supernate
		26	275.4	306.7	3,510	148,000	
5/30	47		335.3	322.5	3,510	45,000	Concentrated supernate
		26	319.4	339.8	3,510	47,000	
5/30	51		348.0	150.5	3,510	693,000	Supernate
		26	227.8	341.5	3,510	726,000	
H-Area							
5/11	5		363	283.9	3,510	278,000	Aged HHW Supernate
		13	174.8	234.7	3,500	289,000	
5/14	36		353	316	3,510	130,000	Concentrate
		13	232.2	255	3,500	136,000	
5/15	37		355.8	348.9	3,510	34,000	Concentrate
		13	251.5	257.7	3,500	36,000	
5/25	37		350.2	311.6	3,510	147,000	Concentrate
		13	217.3	244.1	3,500	153,000	
5/29	35		283.9	265.2	3,510	66,000	Aged HHW Supernate
		13	237	247.5	3,500	69,000	
5/30	51		348	150.5	3,510	693,000	Supernate
		26	227.8	341.5	3,510	726,000	

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution and transfer line flushing.

TABLE WM-3

INTERTANK TRANSFERS

1987 Comple- tion Date	Tanks		Liq Level (in)		Tk Cali- bration, (gal/in)	Gallons Transfer ^a	Type or Origin of Waste
	From	To	Initial	Final			
					<u>F-Area</u>		
6/3	51		150.5	120.7	3,510	105,000	Supernate
		26	317.9	337.4	3,510	112,000	
6/10	27		357.3	309.9	3,510	197,000	Concentrated supernate
		26	291.1	326.9	3,510	205,000	
6/15	45		353.8	341.5	3,510	43,000	Concentrated supernate
		26	272.0	279.2	3,510	45,000	
6/20	27		355.7	329.9	3,510	121,000	Concentrated supernate
		26	270.5	318.1	3,510	126,000	
6/21	42		286.4	187.2	3,510	348,000	Supernate
		26	258.4	328.1	3,510	369,000	
6/23	44		355.5	332.8	3,510	92,000	Concentrated supernate
		26	320.0	336.5	3,510	95,000	
6/24	27		354.1	345.1	3,510	36,000	Concentrated supernate
		26	324.6	331.1	3,510	37,000	
6/26	27		348.8	320.1	3,510	123,000	Concentrated supernate
		26	321.8	337.6	3,510	128,000	
6/30	44		354.5	309.4	3,510	181,000	Concentrated supernate
		26	290.7	335.0	3,510	189,000	
6/30	47		352.4	347.8	3,510	16,000	Concentrated supernate
		26	316.0	319.6	3,510	17,000	

TABLE WM-3 (CONT'D)

INTERTANK TRANSFERS

1987 Comple- tion Date	<u>Tanks</u>		<u>Liq Level (in)</u>		Tk Cali- bration, (gal/in)	<u>Gallons Transfer^a</u>	<u>Type or Origin of Waste</u>
	<u>From</u>	<u>To</u>	<u>Initial</u>	<u>Final</u>			
					<u>H-Area</u>		
6/2	51		150.5	120.7	3,510	105,000	
6/3		26	317.9	337.4	3,510	112,000	Supernate
6/2	10		94.7	94.9	2,710	19,000	
6/4		43	336.2	343	3,510	21,000	Supernate
6/2	36		355.8	306.3	3,510	174,000	
6/5		13	225.2	258.9	3,500	181,000	Concentrate
6/10	40		346.9	323.9	3,510	81,000	
6/11		43	329.1	350	3,510	84,000	Supernate
6/11	37		354.5	305.2	3,510	173,000	
6/16		13	212	255.4	3,500	180,000	Concentrate
6/17	42		286.4	187.2	3,510	348,000	
6/21		26	258.4	328.1	3,510	369,000	Supernate
6/20	40		324.2	294.2	3,510	105,000	
6/20		43	297.8	324.5	3,510	109,000	Supernate
6/26	40		294.3	249.8	3,510	156,000	
6/27		43	297.6	339.4	3,510	162,000	Supernate

^aAdjusted to account for all process flows to or from the tanks during transfer; values for receiving tanks include jet dilution and transfer line flushing.

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TECHNICAL DIVISION
SAVANNAH RIVER LABORATORY

DPST-82-502

MEMORANDUM

April 28, 1982

TO: L. M. PAPOUCHADO

FROM: J. R. FOWLER

COMPOSITION OF H AREA AND SRP SOLUBLE HIGH-LEVEL WASTESUMMARY

The average waste composition is used to model the flowsheet for the Defense Waste Processing Facility. The composition of the sludge was specified earlier to serve as a basis for the Stage I flowsheet.¹ The composition of soluble waste in F Area waste tanks was also specified earlier.² Similar calculations have now been completed for H Area soluble waste. These results have been combined with results for F Area waste to obtain the overall composition of soluble high-level waste in SRP waste tanks. Results are summarized in the attached tables for both H Area and composite soluble waste. These results are based on analytical data on supernate and salt cake samples^{3,4,5} and the January 1981 waste inventory estimate.

Method of Calculation and Results

Approximately 75% of the soluble waste in H Area is contained in salt cake and concentrated supernate. The balance comes from as-received ("fresh") supernate and an estimate of the sodium aluminate that will be dissolved from H Area sludge (75% of total $\text{Al}(\text{OH})_3$ in HM HAW and HM LAW sludge.¹). Three moles of NaOH per mole of $\text{Al}(\text{OH})_3$ were assumed to calculate the weight of soluble species that comes from aluminum dissolving.⁷

Data from tank histories⁴ and the waste inventory⁶ were combined with physical property data from various samples to describe the general composition of H Area soluble waste (Table I). Sampling dates of fresh waste receiving tanks were correlated

with categories of fresh waste (HM HAW, HM/Other LAW) to estimate the composition of each fresh waste category using available analytical data (Table II). The relative contribution of each waste category to total fresh waste receipts⁸ was then used to estimate the composition of composite fresh (as-received) supernate in H Area waste tanks (Table III).

Results from the calculation for fresh supernate were combined with results obtained in a like manner for salt cake, concentrated supernate and aluminum dissolution to obtain the overall composition of soluble waste in H Area waste tanks (Table IV). To account for supernate associated with sludge, 70% of the sludge volume in inventory was assumed to be fresh supernate. This assumption is consistent with relative volumes of liquid and solid in centrifuged samples of actual sludge.⁵ The volume of liquid associated with salt cake was estimated to be 22% of the salt cake volume to account for the liquid associated with salt cake.⁹

The results for H Area were combined with results for F Area soluble waste² to obtain the overall chemical composition of soluble waste presently stored at SRP (Table VI).

REFERENCES

1. J. R. Fowler, "Calculated Composition of SRP Sludge for DWPF CPES Modeling - An Update," DPST-81-372 (April 9, 1981).
2. J. R. Fowler, "Calculated Composition of F Area Soluble High Level Waste," DPST-82-390 (March 10, 1982).
3. R. S. Ondrejcin, "Chemical Compositions of Supernates Stored in SRP High-Level Waste Tanks," DP-1347 (August 1974).
4. See the following waste tank histories:
 - Tank 9, DPSPU 79-11-1 (D. W. Tharin and D. R. Lohr)
 - Tank 10, DPSPU 78-11-11 (T. L. Davis, D. W. Tharin, W. E. Stevens)
 - Tank 11, DPSPU 78-11-12 (T. L. Davis, D. W. Tharin, D. R. Lohr)
 - Tank 12, DPSPU 78-11-9 (T. L. Davis, D. W. Tharin, D. R. Lohr)
 - Tank 13, DPSPU 78-11-2 (T. L. Davis, D. W. Tharin, D. R. Lohr)
 - Tank 14, DPSPU 77-11-19 (T. L. Davis, D. W. Tharin, D. W. Jones, D. R. Lohr)
 - Tank 15, DPSPU 77-11-26 (T. L. Davis, D. W. Tharin, D. R. Lohr)
 - Tank 16, DPSPU 77-11-17 (T. L. Davis, D. W. Tharin, D. W. Jones, D. R. Lohr)
 - Tank 21, DPSPU 78-11-10 (F. G. McNatt)
 - Tank 22, DPSPU 79-11-5 (F. G. McNatt)
5. J. R. Fowler, DPSTN-3302.
6. "Waste Management Programs," DPSP-8¹~~2~~-21-1 (January 1981).
7. B. A. Hamm, personal communication.
8. J. R. Wiley and N. E. Bibler, "Composition and General Properties of Decontaminated Salt," DPST-77-424.
9. C. J. Thomas and T. M. Thompson, "HM Waste Volumes and Compositions," DPSPU-78-272-178 (October 23, 1978).
10. G. L. Fuller, "Liquid Loss from Salt Cake Drum," May 24, 1976.

TABLE I

General Composition of H Area Salt^a

	<u>Dry Salt Cake</u>	<u>"Fresh" Supernate</u>	<u>Conc. Supernate</u>	<u>Aluminum Dissolving</u>	<u>Composite</u>
Volume, 10 ⁶ liters	11.87	22.54 ^b	18.82 ^c	-	-
Density, kg/liter	1.60 ^d	1.27 ^e	1.40	-	-
Total Wt, 10 ³ Metric Tons	19.00	28.63	26.35	2.97	76.95
Wt % Dry Solid	100	32.5	43.0	59.9	-
Wt Dry Solid, 10 ³ Metric Tons	19.00	9.30	11.33	1.78	41.41
Wt % of Total Solids in Soluble Waste ^f	46	23	27	4	100

^aBased on inventory as of 1/20/81.

^bIncludes supernate associated with sludge.

^cIncludes concentrated supernate associated with salt.

^dBased on bulk density of dry salt samples; observed range is 1.2 - 1.7 kg/liter.

^eCalculated composite supernate density (see Table II).

^fUsed as weighting factor to calculate composition of solids in H Area soluble waste (Table IV).

TABLE II

General Composition of Fresh Supernate in H Area

	<u>HM HAW</u>	<u>HM/Other LAW</u>	<u>Composite</u>
Volume % of Fresh Supernate ^a	48	52	100
Density, kg/liter	1.30	1.25	1.27
Wt % Dry Solids ^b	35	30	32.5
Wt Dry Solids/100 Liters Composite Supernate	21.8	19.5	41.0
Wt % of Total Solids in Fresh Supernate ^c	53	47	100

^aFrom DPSPU-78-272-178.

^bCalculated from equations shown in DPSTD-80-39.

^cUsed as weighting factor to calculate composition of solids in fresh supernate (Table III).

TABLE III
 DRY SOLIDS IN FRESH SUPERNATE FROM H AREA WASTE

ASSUMED WASTE COMPONENT	TYPE OF SUPERNATE		FRESH COMPOSITE SOLIDS (WT%)
	HM HAW (WT%)	HM/OTHER LAW (WT%)	
NaNO3	5.25E+01	5.93E+01	5.57E+01 ✓
NaNO2	1.66E+01	1.06E+01	1.38E+01 ✓
NaOH	7.06E+00	1.29E+01	9.83E+00 ✓
Na2CO3	3.30E+00	1.59E+00	2.50E+00 ✓
NaAl(OH)4	1.39E+01	1.08E+01	1.25E+01 ✓
Na2SO4	3.52E+00	2.14E+00	2.87E+00 ✓
NaF	2.48E-02	8.57E-02	5.34E-02 ✓
NaCl	2.23E-01	1.44E-01	1.86E-01 ✓
Na2SiO3	4.65E-01	1.56E-01	3.20E-01 ✓
Na2CR04	8.01E-02	8.26E-02	8.13E-02 ✓
NaHGO(OH)	4.96E-02	2.20E-02	3.66E-02 ✓
NaAG(OH)2	2.97E-05	1.17E-04	7.07E-05 ✓
Na2M004	1.18E-01	0.00E+00	6.25E-02 ✓
KN03	1.54E-01	1.01E+00	5.56E-01 ✓
CAS04	0.00E+00	0.00E+00	0.00E+00 ✓
Na2C204	1.53E-01	1.71E-01	1.61E-01 ✓
Na3P04	8.06E-01	1.69E-01	5.07E-01 ✓
NH4N03	0.00E+00	7.55E-02	3.55E-02 ✓
OTHER SALTS	9.54E-01	7.65E-01	8.65E-01
INSOL.SOLID	3.80E-02	5.10E-02	4.41E-02

TABLE IV
SOLIDS IN H AREA SOLUBLE WASTE

ASSUMED WASTE COMPONENT	TYPE OF WASTE				WEIGHTED AVERAGE	
	SALT (WT%)	FRESH SUPERNATE (WT%)	CONC. SUPERNATE (WT%)	ALUMINUM DISSOLVE (WT%)	COMPOSITE WASTE (WT%)	COMPONENT WEIGHT (METR. TON)
NaNO3	5.17E+01	5.57E+01	4.21E+01		4.78E+01	1.98E+04
NaNO2	1.13E+01	1.38E+01	1.69E+01		1.30E+01	5.37E+03
NaOH	2.77E+00	9.83E+00	1.78E+01	5.04E+01	1.04E+01	4.32E+03
Na2CO3	1.34E+01	2.50E+00	1.66E+00		7.20E+00	2.98E+03
NaAL(OH)4	5.19E+00	1.25E+01	1.67E+01	4.96E+01	1.18E+01	4.89E+03
Na2SO4	1.15E+01	2.87E+00	8.12E-01		6.17E+00	2.55E+03
NaF	3.90E-02	5.34E-02	1.90E-02		3.50E-02	1.45E+01
NaCl	3.07E-01	1.86E-01	2.09E-01		2.41E-01	9.97E+01
Na2SiO3	4.00E-02	3.20E-01	1.10E-01		1.20E-01	4.95E+01
Na2CR04	3.40E-01	8.13E-02	8.04E-02		1.97E-01	8.15E+01
NaHGO(OH)	3.40E-03	3.66E-02	2.08E-02		1.54E-02	6.39E+00
NaAG(OH)2	1.62E-04	7.07E-05	2.78E-04		1.68E-04	6.95E-02
Na2MO04	6.10E-03	6.25E-02	5.88E-02		3.30E-02	1.37E+01
KN03	1.75E-01	5.56E-01	1.23E+00		5.47E-01	2.27E+02
CAS04	1.00E-03		5.09E-04		6.03E-04	2.50E-01
Na2C2O4	1.00E-03	1.61E-01	6.65E-01		2.22E-01	9.20E+01
Na3PO4	5.30E-02	5.07E-01	4.93E-01		2.74E-01	1.13E+02
NH4NO3		3.55E-02	5.41E-02		2.30E-02	9.51E+00
OTHER SALTS	5.00E-01	8.65E-01	1.05E+00		7.15E-01	2.96E+02
INSOL.SOLID	2.41E+00	4.41E-02	3.01E-02		1.13E+00	4.67E+02

4.14E4