Sludge Composition for Each Tank and DWPF Feed Batches

by

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SLUDGE COMPOSITION FOR EACH TANK AND DWPF FEED BATCHES

Attached is a summary of the chemical composition of the sludge on a tank-by-tank basis and the projected chemical composition of the first four feed batches to the DWPF. These four batches will provide sludge feed for about eight years. Feed batch compositions are based on the blending strategy recommended by Interim Waste Management; aluminum dissolving was assumed for any sludge that contains a significant amount of HM high activity waste. None of these batches differs greatly from the overall sludge blend that has been used to design the DWPF and develop glass properties.

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SLUDGE COMPOSITION FOR EACH TANK AND DWPF FEED BATCHES

Summary

The chemical compositions of sludge on a tank-by-tank basis and in the proposed first four batches of feed to the Defense Waste processing Facility (DWPF) have been calculated. Chemical compositions of major types of waste, based on analytical and theoretical work, were previously estimated.^{1,2} These were used, along with tank histories and current inventories³ to calculate tank compositions. These in turn were used, along with blending strategies proposed by Interim Waste Management (WMO/WMT)⁴, to calculate the chemical compositions of the first four batches of sludge feed for the DWPF. These four batches will provide about eight years of feed for the DWPF. In all cases, the weight percents of dry solids were calculated by assuming 1.95 lbs of insoluble solids are present in a gallon of settled sludge.

The chemical compositions of the four proposed batches do not differ greatly from the blended waste composition that has served as the basis for DWPF design and for waste glass product evaluations. These batches should be well-suited for processing in the DWPF without altering the process as now designed.

Based on the blending strategy and the age of the sludge in inventory, the minimum age of the sludge fed through 1996 would be approximately 10 years at the time of processing through the DWPF. Most of the sludge would be at least 20 years old at the time of processing. Because of the age of these batches, radionuclide concentration and shielding will be of minimal concern until after these batches are processed. The age and composition of two additional batches will be provided by WMO/WMT to establish if radionuclide concentration and shielding will be of concern after the older sludge inventory is depleted.

Mercury is present in all sludge types analyzed to date and is also present in salt. Preparing a sludge blend free of mercury for the initial batch to be fed to the DWPF is probably not feasible.

Details

I. Tank-by-Tank Chemical Composition

A. Waste Inventory and Composition

Based on tank histories, Purex HAW and Purex LAW sludge are segregated in F-Area waste tanks except for Tank 7F. Tank 7F has been used as a receiver for LAW. The Purex HAW that was removed from Tanks 1F, 2F, and 3F to enable salt storage was placed in Tank 7F. Based on its history, Tank 7F in F Area contains a blend of Purex HAW, Purex LAW, sand and coal. Sludge volumes by type for F-Area waste tanks are shown in Table I.

In H Area, several tanks contain various blends of Purex HAW, Purex LAW, HM HAW, and HM LAW because two processes (Purex and HM) have been run in the H-Area Canyon. Frame waste from Pu-238 production is combined with HM LAW waste. Several sludge transfers between older tanks have also been done during interim waste management operations. Segregation of HM HAW and HM LAW sludge has been maintained in the newer tanks. Sludge volumes by type for H-Area waste tanks are shown in Table II.

B. Mercury Content of Sludge

Available results for mercury from specific sludge samples are shown in Table III for individual tanks. F-Area waste is significantly lower in mercury than H-Area waste, but the waste is not free of mercury.

C. Tanks Containing One Type of Sludge

Tanks containing only one type of sludge are summarized below by waste type. Several tanks also contain sludge solids from other operations (zeolite from CRC, sludge from 100 Areas disassembly basins). These tanks are shown separately.

Purex HAW: 1F, 2F, 3F, 4F, 5F, 6F, 9H, 10H, 33F, 34F.

Purex LAW: 8F, 17F, 18F, 19F, 20F, 47F.

HM HAW: 32H, 35H, 39H.

HM LAW: 21H, 22H, 43H.

Zeolite: 19F, 27F, 24H, 42H.

100 Areas Sludge: 47F.

The chemical composition of each waste type is shown in Table IV. Zeolite, coal and sand - components in specific tanks only - have been eliminated from the LAW compositions to provide adjusted Purex LAW and HM LAW compositions. The composition shown for HM HAW does not reflect aluminum dissolving.

D. Tank-by-Tank Compositions

Calculated composition of sludges in tanks containing mixtures of several waste types are shown in Tables V-1 through V-3. These compositions include zeolite, sand and coal where appropriate.

II. Composition of DWPF Feed Batches

A. Proposed Blending Strategy

The blending strategy proposed by WMO/WMT is summarized in Table VI. The volumes and compositions shown assume that the zeolite presently in Tank 24H will be split between Tank 13H and Tank 43H. The zeolite in Tank 19F will be transferred to Tank 18F. These transfers will occur before DWPF feed preparation begins.

All sludges containing significant amounts of HM HAW will be aluminum dissolved. These sludges are presently contained in Tanks 11H, 12H, 13H, 14H, 15H, 32H, 35H, and 39H. The sludge in Tank 42H has already been aluminum dissolved.

Residual volume of sludge after aluminum dissolving is assumed to be 50% of the present volume in inventory based on experience from the in-tank demonstration of aluminum dissolving. Because of the significant quantity of other sludge types in Tank 13H, residual volume of sludge from Tank 13H is assumed to be 75% of the present inventory. These assumptions were used to estimate the volumes of the four batches to be fed to the DWPF.

B. Composition of DWPF Feed Batches

The major components of the four batches to be fed to the DWPF are shown in Table VII. For comparison, the composition of the overall sludge blend presently used in the flowsheet is also shown. These batch compositions do not differ widely from the overall sludge blend and the variations from the blend should have minimal impact on the design and operation of the DWPF. Aluminum dissolving of HM HAW sludges listed in the previous section is reflected in these compositions. A complete listing of the components in each batch is available from J. R. Fowler, if needed.

III. Quality Assurance and Quality of Data

Results presented here are based on the best available data at the time of writing. The purpose of this document is to provide guidance for sludge processing strategy in the tank farm. Results shown here should not be construed to yield an exact description of any sludge from the tank farm because of the variable nature of waste handling and simplifying assumptions used in these calculations. Data presented is of sufficient accuracy for planning purposes, but it will not substitute for actual analyses of various sludge samples during sludge removal and blending operations.

Sludge volume data rather than weight data is available from Tank Farm records. Consequently, variation of the weight of sludge solids in a specified volume can influence calculations significantly. Results from calculations shown here are strongly dependent on two simplifying assumptions:

- o 1.95 lbs sludge solids/gallon
- o 50% reduction in sludge volume during aluminum dissolving.

The volume of 1.95 lbs/gallon has been used in all sludge composition calculations associated with the Tank Farm and DWPF. Experimentally, settled sludge solids ranging from 1.5 to 2.8 lbs/gallon have been observed in samples from the Tank Farm.

In the in-tank demonstration of aluminum dissolving, residual sludge after treatment settled to approximately half the original volume of sludge that was treated. Accordingly, 50% of the volume of sludge to be aluminum dissolved was used to estimate batch sizes except for Tank 13H. Only 25% volume reduction was assumed for 13H because a significant fraction of this sludge does not contain a high concentration of aluminum hydroxide.

References

1. R. E. Eibling and J. R. Fowler, "Updated Waste Composition at the Savannah River Plant", DPST-83-313, February 16, 1983.
2. R. E. Eibling and J. R. Fowler, "Waste Composition at the Savannah River Plant", DPST-82-897, October 4, 1982.
3. "Monthly Report - February 1984; Waste Management Technology", March 5, 1984.
4. S. J. Cathey and P. J. Shippey, private communications.

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TABLE I
SLUDGE IN F-AREA WASTE TANKS

WASTE VOLUME (GALLONS)
Ref. (2)

Waste Type:	Purex HAW	Purex LAW	HM HAW	HM LAW	Other	Total Sludge	Salt
<u>Tank No.</u>							
1F	7.0E3					7.0E3	4.3E5
2F*	4.03E					4.0E3	4.5E5
3F	4.0E3					4.0E3	4.3E5
4F*	1.3E5					1.3E5	3.4E4
5F*	4.1E4					4.1E4	
6F*	2.5E4					2.5E4	
7F*	8.1E4	1.4E5			SiO ₂ ,C	2.2E5	
8F*		2.4E5				2.4E5	
17F*		3.4E5				3.4E5	3.8E5
18F*		2.7E5				2.7E5	
19F*		2.5E4			zeolite	2.5E4	2.0E4
20F		1.0E4				1.0E4	3.7E5
25F							4.0E5
26F		1.5E5				1.5E5	
27F					zeolite		1.1E5
28F							9.2E5
33F	2.4E4					2.4E4	5.3E5
34F	4.4E4					4.4E4	1.7E5
44F							4.9E5
45F							1.5E5
46F	NOT IN SERVICE						
47F				1.3E5	100 Area	1.3E5	2.4E5

* = sludge sampled and analyzed.

TABLE II
SLUDGE IN H-AREA WASTE TANKS

		WASTE VOLUME (GALLONS) Ref. (2)				Total Sludge	Salt
Waste Type:	Purex HAW	Purex LAW	HM HAW	HM LAW	Other		
<u>Tank No.</u>							
9H*	4.0E3					4.0E3	
10H*	4.0E3					4.0E3	
11H*		1.5E4	1.6E5	5.0E3		1.8E5	
12H*	6.0E4		1.9E5			2.5E5	
13H*	1.4E5	5.0E3	1.9E5	6.8E4		4.0E5	
14H	1.7E4			1.0E4		2.7E4	
15H*			2.7E5	4.0E3		2.7E5	
16H*	SLUDGE TRANSFERRED TO 15H						
21H				2.2E5		2.2E5	
22H				5.3E4		5.3E4	
23H*	RBOF WASTE: DPST-84-342 SHOWS ANALYSIS				4.3E4	4.3E4	
24H*					zeolite		
29H							1.0E6
30H							6.0E3
31H							9.6E5
32H			1.3E5			1.3E5	
35H			3.5E4			3.5E4	
36H							3.6E5
37H							3.1E5
38H							
39H			5.0E3			5.0E3	
40H							
41H							8.4E4
42H			9.0E4			9.0E4	
43H				2.4E4	zeolite	2.4E4	
48H	PRECIPITATION PROCESSING TANK						
49H							
50H							

* = sludge sampled and analyzed.

TABLE III
MERCURIC OXIDE IN SLUDGE SAMPLES

<u>Tank No.</u>	<u>Wt. % HgO</u>	<u>Tank No.</u>	<u>Wt. % HgO</u>
1F	0.024	9H	
2F		10H	
3F		11H	3.6
4F	0.19	12H	1.2
5F	0.12	13H	2.5
6F	0.19	14H	
7F	0.076	15H	4.3
8F	0.11	16H	3.0
17F		21H	
18F	0.11	22H	
19F	0.072	23H	
20F		24H	
25F		29H	
26F		30H	
27F		31H	
28F		32H	
33F		35H	
34F		36H	
44F		37H	
45F		38H	
46F		39H	
47F		40H	
		41H	
		42H	
		43H	
		48H	
		49H	
		50H	

NOTE: Results for tanks 1F and 19F are on insoluble residue from salt samples.

TABLE IV

SLUDGE COMPOSITION BY WASTE TYPE
(WT % OF EACH SPECIES)
Ref (1)

sludge species	ADJUSTED*						ADJUSTED*
	PUREX	HAW	PUREX	LAW	PUREX	LAW	HM LAW
=====	=====	=====	=====	=====	=====	=====	=====
Fe(OH)3	48.51	46.52	48.00	10.18	35.54	46.02	
MnO2	12.11	4.08	4.21	2.61	9.15	11.85	
UO2(OH)2	10.93	7.55	7.79	1.25	3.64	4.71	
Al(OH)3	6.50	13.46	13.89	67.06	15.93	20.63	
CaCO3	2.77	5.28	5.45	0.00	3.52	4.56	
CaSO4	0.00	0.65	0.67	0.00	0.00	0.00	
CaC2O4	0.00	0.00	0.00	2.16	0.00	0.00	
Ca3(PO4)2	0.33	0.19	0.20	0.09	0.00	0.00	
CaF2	0.04	0.33	0.34	0.00	0.00	0.00	
Ni(OH)2	5.79	3.34	3.45	1.01	0.52	0.67	
NaOH	5.08	4.55	4.69	1.35	2.54	3.29	
NaNO3	1.34	1.52	1.57	3.26	0.27	0.35	
HgO	0.24	0.07	0.07	3.01	1.66	2.15	
NaCl	0.21	2.01	2.07	0.00	1.11	1.44	
NaI	0.00	0.04	0.04	0.00	0.00	0.00	
RuO2	0.38	0.66	0.68	0.03	0.00	0.00	
SiO2	0.96	1.83	1.89	4.68	0.00	0.00	
ThO2	0.08	0.01	0.01	1.31	0.08	0.10	
BaSO4	0.80	0.30	0.31	0.14	0.17	0.22	
Ce(OH)3	0.26	0.34	0.35	0.05	0.92	1.19	
PbSO4	0.11	0.37	0.38	0.01	0.44	0.57	
La(OH)3	0.12	0.21	0.22	0.04	0.28	0.36	
ZrO(OH)2	0.60	0.78	0.80	0.25	0.42	0.54	
Cr(OH)3	0.69	0.42	0.43	0.23	0.12	0.16	
AgOH	0.07	0.35	0.36	0.00	0.00	0.00	
Cu(OH)2	0.15	0.23	0.24	0.05	0.03	0.04	
Co(OH)3	0.00	0.02	0.02	0.00	0.00	0.00	
Pr(OH)3	0.12	0.21	0.22	0.04	0.18	0.23	
Zn(OH)2	0.23	0.46	0.47	0.05	0.00	0.00	
Mg(OH)2	0.58	0.20	0.21	0.27	0.49	0.63	
COAL	0.00	0.30	0.00	0.00	0.00	0.00	
ZEOLITE	0.00	2.36	0.00	0.00	22.78	0.00	
KNO3	0.25	0.85	0.88	0.22	0.14	0.18	
Na2SO4	0.00	0.00	0.00	0.32	0.00	0.00	
KOH	0.00	0.00	0.00	0.00	0.00	0.00	
SrCO3	0.27	0.11	0.11	0.06	0.03	0.04	
BaCO3	0.00	0.00	0.00	0.00	0.00	0.00	
PbCO3	0.49	0.00	0.00	0.00	0.05	0.06	
Na2C2O4	0.00	0.00	0.00	0.00	0.00	0.00	
Na3PO4	0.00	0.00	0.00	0.03	0.00	0.00	
NaF	0.00	0.00	0.00	0.24	0.00	0.00	
SAND	0.00	0.42	0.00	0.00	0.00	0.00	
TOTAL	100.01	100.02	100.01	100.00	100.01	100.01	

* Zeolite, coal and sand subtracted from total and weight percent readjusted.

TABLE V-1

	TANK 7F		TANK 11H	
	GAL.	TYPE	GAL.	TYPE
	8.1E+04	PUREX HAW	NONE	PUREX HAW
	1.4E+05	PUREX LAW	1.5E+04	PUREX LAW
	NONE	HM HAW	1.6E+05	HM HAW
	NONE	HM LAW	5.0E+03	HM LAW
	2.2E+05	TOTAL	1.8E+05	TOTAL
sludge species	LBS	WT%	LBS	WT%
Fe(OH)3	2.1E+05	46.35	5.0E+04	14.33
MnO2	3.1E+04	6.83	1.1E+04	3.00
UO2(OH)2	3.9E+04	8.60	6.6E+03	1.89
Al(OH)3	4.8E+04	10.75	2.2E+05	61.34
CaCO3	1.9E+04	4.30	2.0E+03	0.58
CaSO4	1.8E+03	0.41	2.0E+02	0.06
CaC2O4	0.0E+00	0.00	6.7E+03	1.92
Ca3(PO4)2	1.1E+03	0.24	3.4E+02	0.10
CaF2	9.9E+02	0.22	1.0E+02	0.03
Ni(OH)2	1.9E+04	4.14	4.2E+03	1.20
NaOH	2.1E+04	4.65	5.9E+03	1.68
NaNO3	6.4E+03	1.43	1.1E+04	3.04
HgO	5.8E+02	0.13	9.6E+03	2.74
NaCl	6.0E+03	1.34	7.5E+02	0.21
NaI	1.1E+02	0.03	1.2E+01	.00
RuO2	2.5E+03	0.55	2.9E+02	0.08
SiO2	6.7E+03	1.49	1.5E+04	4.32
ThO2	1.5E+02	0.03	4.1E+03	1.17
BaSO4	2.1E+03	0.47	5.5E+02	0.16
Ce(OH)3	1.4E+03	0.31	3.7E+02	0.11
PbSO4	1.2E+03	0.27	2.0E+02	0.06
La(OH)3	7.8E+02	0.17	2.2E+02	0.06
ZrO(OH)2	3.1E+03	0.70	1.1E+03	0.30
Cr(OH)3	2.3E+03	0.51	8.6E+02	0.24
AgOH	1.1E+03	0.24	1.1E+02	0.03
Cu(OH)2	8.8E+02	0.20	2.3E+02	0.07
Co(OH)3	5.6E+01	0.01	6.0E+00	.00
Pr(OH)3	7.8E+02	0.17	2.1E+02	0.06
Zn(OH)2	1.7E+03	0.37	2.9E+02	0.08
Mg(OH)2	1.5E+03	0.33	9.6E+02	0.27
COAL	7.0E+03	1.56	0.0E+00	0.00
ZEOLITE	0.0E+00	0.00	0.0E+00	0.00
KNO3	2.8E+03	0.62	9.6E+02	0.27
Na2SO4	0.0E+00	0.00	1.0E+03	0.28
KOH	0.0E+00	0.00	0.0E+00	0.00
SrCO3	7.4E+02	0.16	2.2E+02	0.06
BaCO3	0.0E+00	0.00	0.0E+00	0.00
PbCO3	7.7E+02	0.17	6.3E+00	.00
Na2C2O4	0.0E+00	0.00	0.0E+00	0.00
Na3PO4	0.0E+00	0.00	9.4E+01	0.03
NaF	0.0E+00	0.00	7.5E+02	0.21
SAND	1.0E+04	2.23	0.0E+00	0.00
TOTAL	4.5E+05	100.00	3.5E+05	100.00

TABLE V-2

	TANK 12H		TANK 13H	
	GAL.	TYPE	GAL.	TYPE
	6.0E+04	PUREX HAW	1.4E+05	PUREX HAW
	NONE	PUREX LAW	5.0E+03	PUREX LAW
	1.9E+05	HM HAW	1.9E+05	HM HAW
	NONE	HM LAW	6.8E+04	HM LAW
	2.5E+05	TOTAL	4.0E+05	TOTAL
sludge species	LBS	WT%	LBS	WT%
Fe(OH)3	9.4E+04	19.38	2.4E+05	30.01
MnO2	2.4E+04	4.89	5.9E+04	7.49
UO2(OH)2	1.7E+04	3.57	4.1E+04	5.28
Al(OH)3	2.6E+05	52.52	2.9E+05	37.53
CaCO3	3.2E+03	0.66	1.4E+04	1.80
CaSO4	0.0E+00	0.00	6.5E+01	0.01
CaC2O4	8.0E+03	1.64	8.0E+03	1.02
Ca3(PO4)2	7.2E+02	0.15	1.3E+03	0.16
CaF2	4.7E+01	0.01	1.4E+02	0.02
Ni(OH)2	1.1E+04	2.16	2.1E+04	2.64
NaOH	1.1E+04	2.25	2.4E+04	3.01
NaNO3	1.4E+04	2.80	1.6E+04	2.08
HgO	1.1E+04	2.35	1.5E+04	1.87
NaCl	2.5E+02	0.05	2.7E+03	0.34
NaI	0.0E+00	0.00	4.0E+00	.00
RuO2	5.6E+02	0.11	1.2E+03	0.15
SiO2	1.8E+04	3.79	2.0E+04	2.56
ThO2	4.9E+03	1.01	5.2E+03	0.66
BaSO4	1.5E+03	0.30	3.0E+03	0.38
Ce(OH)3	4.9E+02	0.10	2.5E+03	0.32
PbSO4	1.7E+02	0.03	1.1E+03	0.14
La(OH)3	2.9E+02	0.06	9.8E+02	0.12
ZrO(OH)2	1.6E+03	0.33	3.4E+03	0.43
Cr(OH)3	1.7E+03	0.34	3.0E+03	0.38
AgOH	8.2E+01	0.02	2.3E+02	0.03
Cu(OH)2	3.6E+02	0.07	6.7E+02	0.09
Co(OH)3	0.0E+00	0.00	2.0E+00	.00
Pr(OH)3	2.9E+02	0.06	8.1E+02	0.10
Zn(OH)2	4.5E+02	0.09	8.6E+02	0.11
Mg(OH)2	1.7E+03	0.34	3.4E+03	0.44
COAL	0.0E+00	0.00	0.0E+00	0.00
ZEOLITE	0.0E+00	0.00	0.0E+00	0.00
KNO3	1.1E+03	0.23	1.8E+03	0.23
Na2SO4	1.2E+03	0.24	1.2E+03	0.15
KOH	0.0E+00	0.00	0.0E+00	0.00
SrCO3	5.4E+02	0.11	1.0E+03	0.13
BaCO3	0.0E+00	0.00	0.0E+00	0.00
PbCO3	5.7E+02	0.12	1.4E+03	0.18
Na2C2O4	0.0E+00	0.00	0.0E+00	0.00
Na3PO4	1.1E+02	0.02	1.1E+02	0.01
NaF	8.9E+02	0.18	8.9E+02	0.11
SAND	0.0E+00	0.00	0.0E+00	0.00
TOTAL	4.9E+05	100.00	7.9E+05	100.00

TABLE V-3

	TANK 14H		TYPE	TANK 15H	
	GAL.			GAL.	TYPE
	1.7E+04	PUREX	HAW	NONE	PUREX HAW
	NONE	PUREX	LAW	NONE	PUREX LAW
	NONE	HM	HAW	2.7E+05	HM HAW
	1.0E+04	HM	LAW	4.0E+03	HM LAW
	2.7E+04	TOTAL		2.7E+05	TOTAL
sludge species	LBS	WT%		LBS	WT%
Fe(OH)3	2.5E+04	47.58		5.7E+04	10.70
MnO2	6.3E+03	12.01		1.5E+04	2.74
UO2(OH)2	4.5E+03	8.63		6.9E+03	1.30
Al(OH)3	6.2E+03	11.73		3.5E+05	66.38
CaCO3	1.8E+03	3.43		3.6E+02	0.07
CaSO4	0.0E+00	0.00		0.0E+00	0.00
CaC2O4	0.0E+00	0.00		1.1E+04	2.13
Ca3(PO4)2	1.1E+02	0.21		4.7E+02	0.09
CaF2	1.3E+01	0.03		0.0E+00	0.00
Ni(OH)2	2.1E+03	3.89		5.4E+03	1.01
NaOH	2.3E+03	4.42		7.4E+03	1.38
NaNO3	5.1E+02	0.97		1.7E+04	3.22
HgO	5.0E+02	0.95		1.6E+04	3.00
NaCl	3.5E+02	0.66		1.1E+02	0.02
NaI	0.0E+00	0.00		0.0E+00	0.00
RuO2	1.3E+02	0.24		1.6E+02	0.03
SiO2	3.2E+02	0.60		2.5E+04	4.61
ThO2	4.7E+01	0.09		6.9E+03	1.29
BaSO4	3.1E+02	0.59		7.5E+02	0.14
Ce(OH)3	3.2E+02	0.60		3.6E+02	0.07
PbSO4	1.5E+02	0.28		9.7E+01	0.02
La(OH)3	1.1E+02	0.21		2.4E+02	0.04
ZrO(OH)2	3.0E+02	0.58		1.4E+03	0.25
Cr(OH)3	2.6E+02	0.49		1.2E+03	0.23
AgOH	2.3E+01	0.04		0.0E+00	0.00
Cu(OH)2	5.7E+01	0.11		2.7E+02	0.05
Co(OH)3	0.0E+00	0.00		0.0E+00	0.00
Pr(OH)3	8.5E+01	0.16		2.3E+02	0.04
Zn(OH)2	7.6E+01	0.14		2.6E+02	0.05
Mg(OH)2	3.2E+02	0.60		1.5E+03	0.28
COAL	0.0E+00	0.00		0.0E+00	0.00
ZEOLITE	0.0E+00	0.00		0.0E+00	0.00
KNO3	1.2E+02	0.22		1.2E+03	0.22
Na2SO4	0.0E+00	0.00		1.7E+03	0.32
KOH	0.0E+00	0.00		0.0E+00	0.00
SrCO3	9.7E+01	0.18		3.2E+02	0.06
BaCO3	0.0E+00	0.00		0.0E+00	0.00
PbCO3	1.8E+02	0.33		5.1E+00	.00
Na2C2O4	0.0E+00	0.00		0.0E+00	0.00
Na3PO4	0.0E+00	0.00		1.6E+02	0.03
NaF	0.0E+00	0.00		1.3E+03	0.24
SAND	0.0E+00	0.00		0.0E+00	0.00
TOTAL	5.3E+04	100.00		5.3E+05	100.00

TABLE VI

SLUDGE BATCHES FOR FEED TO THE DWPF SLUDGE PLANT
Ref (3)

<u>Batch Number</u>	<u>Tank Number</u>	<u>Waste Type</u>	<u>Waste Age</u>	<u>Waste Volume</u>	<u>Cumulative Volume</u>	<u>Year Fed to DWPF</u>
1a						89-90
	18F	P-LAW	16Y	227,000	227,000	
	21,22H	HM-LAW	13Y	311,000	538,000	
	42H	HM-HAW	25Y	91,000	629,000	
	19F	ZEO.	---	?	629,000	
2a						91-92
	18F	P-LAW	18Y	410,000	410,000	
	15H	HM-HAW	27Y	269,000	544,500	
	11H	HM-HAW	20Y	176,000	632,500	
	14H	HM-HAW	35Y	27,000	646,000	
	19F	ZEO.	---	?	646,000	
3a						93-94
	12H	HM-HAW	27Y	253,000	126,500	
	5F	P-HAW	32Y	41,000	167,500	
	6F	P-HAW	27Y	25,000	192,500	
	7F	P-HAW	39Y	175,000	367,500	
	7F	P-LAW	31Y	46,000	413,500	
	8F	P-HAW	24Y	118,000	531,500	
	8F	P-LAW	37Y	59,000	590,500	
	8F	P-LAW	15Y	59,000	649,500	
4a						95-96
	4F	P-HAW	26Y	127,000	127,000	
	13H	P-HAW	40Y	175,000	258,250	
	13H	P-HAW	41Y	40,000	288,250	
	13H	HM-HAW	32Y	80,000	348,250	
	13H	HM-LAW	33Y	108,000	429,250	
	26F	P-LAW	>5Y	200,000	629,250	
	24H	ZEO.	---	?	629,250	

TABLE VII

COMPARISON OF DWPF FEED BATCHES TO OVERALL BLEND

Sludge Species	Batch 1a (Wt%)	Batch 2a (Wt%)	Batch 3a* (Wt%)	Batch 4a (Wt%)	Blend** (Wt%)
Fe(OH)3	42.68	37.49	42.33	41.90	39.89
MnO2	8.07	4.53	8.66	7.89	6.84
UO2(OH)2	5.46	5.79	8.38	7.56	6.63
Al(OH)3	19.92	20.88	13.50	12.59	16.46
CaCO3	4.19	3.42	2.87	3.43	3.38
CaF2	0.12	0.21	0.11	0.13	0.15
Ni(OH)2	1.86	2.90	4.41	3.62	3.16
NaOH	3.68	3.93	4.46	4.14	3.98
NaNO3	1.67	3.35	2.38	1.66	2.34
Na2SO4	0.09	0.23	0.13	0.06	0.14
NaF	0.07	0.17	0.09	0.04	0.10
NaCl	1.45	1.30	0.63	0.95	1.07
NaI	0.01	0.03	0.01	0.01	0.02
HgO	1.95	2.23	1.32	0.91	1.60
RuO2	0.25	0.45	0.39	0.38	0.37
SiO2	2.03	4.58	2.81	1.83	2.94
Coal	0	0	0.54	0	0.13
Zeolite	0.81	1.18	0	7.54	4.50
Other	5.68	7.33	6.99	5.35	6.30
Total	100.00	100.00	100.00	100.00	100.00
Gallons of Feed	629,000	646,000	649,000	629,000	
F-Area Tanks	18	18	5,6,7,8	4,26	
H-Area Tanks	21,22,42	11,14,15	12	13	

*Includes sludge from Tank 7F

**After DPST-83-313