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HANFORD ANALYTICAL SAMPLE PROJECTIONS 1996 THRU
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HANFORD ANALYTICAL SAMPLE PROJECTIONS 1996-2000

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Key Words: Analytical Services strategy, sample projections, Environmental Restoration, TWRS, Liquid Effluents, Solid Waste, Industrial Hygiene, Site Monitoring, Process Support, Field Sampling, TRU.

Abstract: Sample projections are compiled for the Hanford site based on inputs from the major programs for the years 1996 through 2000. Sample projections are categorized by radiation level, protocol, sample matrix and Program. Analyses requirements are also presented.

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1.0 PURPOSE

This document summarizes the bi-annual Hanford sample projections for fiscal years 1996 to 2000. Sample projections are based on inputs submitted to Analytical Services by Environmental Restoration, Tank Waste Remediation Systems (TWRS), Solid Waste, Liquid Effluents, Spent Nuclear Fuels, Site Monitoring, Industrial Hygiene, and other Hanford Process Support activities. This information will be used by the Analytical Services Program to assure laboratories are available to support the documented needs.

2.0 SCOPE

The sample projections for each activity were requested to be categorized by radioactivity, analytes, protocol, and matrix as follows:

Radioactivity: Category 1 Non-Radioactive
 Category 2 <1 mR/hr B- γ ; <10 nCi/g α
 Category 3 1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α
 Category 4 <10 mR/hr B- γ ; and <200 nCi/g α
 Category 5 10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α
 Category 6 >100 mR/hr B- γ
 Category 7 >200 nCi/g α

Analytes: Identification of all known analytes.

Protocol: Protocol includes: RCRA, CERCLA, Clean Water Act, Clean Air Act, Bioassay, Industrial Hygiene, Safe Drinking Water Act, Process Control, etc.

Matrix: The matrix describes physical characteristics of the sample such as; soil, biota, sludge, complex soil waste, tank waste, vapor, sediment, groundwater, air, etc.

In addition, funding levels associated with the sample projections were requested, but in most cases, not provided and were not included in this revision.

Program activities for which sample projections were anticipated are listed below; inputs provided by the programs are identified with an asterisk (*) and provided in the appendices:

Environmental
 Restoration: 100*, 200*, and 300* Areas, Ponds*, Basins*, Cribs*, Decontamination and Decommissioning (D&D)*, Environmental Restoration Disposal Facility (ERDF) and cleanup sites*.

Tank Waste
 Remediation
 System: TWRS Characterization Program*, 242-A, Disposal Program and Development.

Solid Waste: Central Waste Complex*, the Mixed Waste Stabilization Program*, WRAP 1*, and T-Plant*.

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Liquid Effluents:	200 Area Effluent Treatment Facility (200 ETF)*, the LERF*, the ETF Ground Water Monitoring Wells*, the 200 Area Treated Effluent Disposal Facility (200 TEDF)*, the 200 Area Generators*, 200 Area TEDF Ground Water* and the 300 Area Treated Effluent Disposal Facility (300 TEDF)*.
Spent Nuclear Fuels:	Spent Nuclear Fuel Basin Sludge Characterization*.
Site Monitoring:	Environmental Monitoring*, the RCRA Groundwater Monitoring Program* and the Bioassay Program.
Industrial Hygiene:	Industrial Hygiene, Drinking Water.
Additional Process Support:	Process Control (Plutonium Finishing Plant*, B-Plant* and Waste Encapsulation and Storage Facility {WESF}*), PUREX*), Development, Environmental (Effluent Monitoring and Near Field Monitoring*), Stack Monitoring and Room Air Monitoring.

3.0 SUMMARY

During FY 1995 substantial reductions in analytical service needs occurred at Hanford. Sample projections for FY 1996 - FY 2000 reflect a continuance of analytical service needs at the reduced levels. Only program needs identified in written correspondence are included in this report. Known activities not provided include: the TWRS Disposal Program, TWRS Development, Environmental Restoration Disposal Facility (ERDF), drinking water and the Bioassay Program. Process Support needs such as Stack and Room Air Monitoring were only partially identified by the programs. Table 1 provides the Hanford Program sample projection summary, Table 2 provides the information by radiation level, Table 3 provides the yearly summary by protocol, and Table 4 provides the yearly matrix summary.

The overall quality of inputs received from the programs was very good. Improved details on analyses requirements and estimates of sample characteristics (radiation level, matrix, protocol etc.) were available. However, significant uncertainties with several programs are evident from omissions in the sample projections. Examples include a lack of input from the TWRS Disposal Program, a lack of input from the Solid Waste Program beyond WRAP I operations and a lack of soil sample analyses requirements from the Environmental Restoration Program. Previous sample projections used the Tri-Party Agreement as a planning basis; current uncertainties regarding the direction of the cleanup effort (i.e. new contracting strategies, funding shortfalls, schedule uncertainties) make long-term planning difficult.

4.0 DISCUSSION

The Analytical Services Program updates this Hanford Analytical Sample Projections report bi-annually (November and May). A request for a sample projection update was distributed to Hanford programs in September, 1995. The sample projections are utilized by the Analytical Services Program to assure timely and cost effective laboratory support is available. It is understood that sample information may not be well known (i.e. budgets, strategies, etc.), but programs were still requested to provide their best estimate of analytical needs.

Table 1
Hanford Program Sample Projection Summary

PROGRAM	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Environmental Restoration	37,404	34,914	34,586	34,676	34,772
Tank Waste Remediation System	2,303	1,884	1,065	0	0
Solid Waste	1,809	1,529	90	150	186
Liquid Effluents	1,928	1,928	1,928	1,928	1,928
Spent Nuclear Fuels	30	30	0	0	0
Site Monitoring	7,395	6,721	6,343	6,343	6,343
Industrial Hygiene	4,000	4,000	4,000	4,000	4,000
Process Support	23,315	23,060	22,927	22,911	22,911
TOTALS	78,184	74,066	70,639	70,008	70,140

Table 2
Yearly Sample Projection Summary by Radiation Level

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	40,912	40,748	40,449	40,496	40,530
<1 mR/hr B- γ ; <10 nCi/g α	33,384	29,912	27,931	27,864	27,955
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	686	529	383	383	390
<10 mR/hr B- γ ; and <200 nCi/g α	55	34	36	36	36
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	286	286	286	430	430
>100 mR/hr B- γ	2,113	1,809	1,095	30	30
>200 nCi/g α	748	748	759	769	769

Table 3
Yearly Sample Projection Summary by Protocol

Protocol	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
RCRA	10,461	9,793	9,135	9,359	9,424
CERCLA	1,267	1,028	967	1,012	1,079
Process Control	57,289	56,625	55,297	55,281	55,281
Industrial Hygiene	4,000	4,000	4,000	4,000	4,000
Field	2,864	716	475	356	356
Tank Waste	2,063	1,749	1,065	0	0
Vapor	240	135	0	0	0

Table 4
Yearly Sample Projection Summary by Matrix

Matrix	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Tank Waste	2,063	1,749	1,065	0	0
Biota	256	235	223	223	223
Air	24,527	24,016	22,592	22,592	22,592
Soils/Solids	2,024	894	846	846	846
Water/Liquid	10,578	9,608	9,187	9,142	9,177
Sludge/Sediment	3,703	3,438	3,408	3,413	3,380
Vapor	32,857	32,572	32,500	32,587	32,586
Complex Solid Waste	272	650	214	301	432

4.1 ENVIRONMENTAL RESTORATION

Sample projections for the Environmental Restoration program are provided for 100, 200, and 300 Areas, Ponds, Basins, Cribs, Decontamination and Decommissioning (D & D) and cleanup sites.

Table 5 provides the yearly sample projection by radiation level. Table 6 provides the yearly sample analysis summary. Table 7 provides the yearly sample projections by protocol. Table 8 provides the yearly sample projections by matrix.

TREND

Environmental Restoration sample projections show a significant growth in the percentage of water samples and no change in the number of FY 1996 samples from the FY 1995 actuals.

Table 5
Yearly Sample Projections by Radiation Level for the Environmental
Restoration Program

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	32,500	32,500	32,500	32,500	32,500
<1 mR/hr B- γ ; <10 nCi/g α	4,440	2,075	1,763	1,712	1,803
1 mR/hr B- γ to <10 mR/hr B- γ	234	109	93	90	95
<10 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	230	230	230	374	374
>100 mR/hr B- γ	0	0	0	0	0
>200 nCi/g α	0	0	0	0	0
TOTAL	37,404	34,914	34,586	34,676	34,772

Table 6
Yearly Sample Analysis Summary for the Environmental
Restoration Program

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
VOA/SEMI-VOA	VOA SEMI-VOA	2,798	676	576	682	762
PEST/PCBs	PESTICIDES PCBs	1,815	120	0	120	200
OTHER ORGANIC	WTPH-G OIL GREASE	27	54	66	66	66
INORGANIC	CHLORIDE NITRATE SULFATE IRON MANGANESE	640	982	1,010	1,076	1,156
METALS	ARSENIC CADMIUM CHROMIUM LEAD MERCURY	2,331	1,412	1,140	1,094	1,174
RAD. CHEM	GROSS ALPHA GROSS BETA TOTAL RADIUM RADIUM - 226	3,538	1,286	1,114	1,288	1,288

Table 7
Yearly Sample Projections by Protocol for the Environmental
Restoration Program

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
CERCLA	1,267	1,028	967	1,012	1,079
RCRA	773	670	644	808	837
FIELD	2,864	716	475	356	356
PROCESS CONTROL	32,500	32,500	32,500	32,500	32,500

Table 8
Yearly Sample Projections by Matrix for the Environmental Restoration Program

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Soils	1,829	12	0	0	0
Water/Groundwater	2,606	1,982	1,926	1,944	1,931
Sludge/Sediment	293	28	28	28	0
Vapor	32,617	32,572	32,500	32,572	32,587
Complex Solid Waste (i.e., Resins)	59	320	132	159	254

4.2 TWRS

Sample projections for the Tank Waste Remediation System (TWRS) program have been provided based on the TWRS Characterization Program Baseline Sampling Schedule Change Request 95-05 Revision 4.4 (89 AEU's in FY 1996, 45 AEU's in FY 1997 and 34 AEU's in FY 1998). Sampling projections from other TWRS activities such as the disposal program were not available. Analytical Services needs after completion of the Characterization Program are not available.

Table 9 provides the yearly sample projection by radiation level. Table 10 provides the yearly sample analysis summary. Table 11 provides the yearly sample projections by protocol. Table 12 provides the yearly sample projections by matrix.

TREND

Projections will result in a four-fold increase in FY 96 of analytical services in FY 95 (89 AEU's planned versus 22 AEU's actual for tank waste samples). A four fold decrease in the projected number of FY 1996 vapor samples was also noted.

Table 9
Yearly Sample Projections by Radiation Level for the TWRS Program

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	0	0	0	0	0
<1 mR/hr B- γ ; <10 nCi/g α	240	135	0	0	0
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	0	0	0	0	0
<10 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
>100 mR/hr B- γ	2,063	1,749	1,065	?	?
>200 nCi/g α	0	0	0	0	0
TOTAL	2,303	1,884	1,065	0	0

Table 10
Yearly Sample Analysis Summary for the TWRS Program

Analysis	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
%H ₂ O	670	214	116	0	0
Acid Digestion**	2,055	952	701	0	0
Adiabatic Calorimetry	1,120	602	333	0	0
Am - sep.	52	12	0	0	0
Am-241	52	12	0	0	0
Anions (IC)	1,952	367	179	0	0
As	8	0	0	0	0
C-14	8	0	0	0	0
Carbonate	14	15	15	0	0
Cm-242	44	12	0	0	0
Cm-243/244	52	12	0	0	0
Cr+6	44	12	0	0	0
Density	1,064	876	488	0	0
DSC/TGA**	2,975	1,777	1,103	0	0
Equalib-Moisture	670	214	116	0	0
Formate/Oxalate	44	12	0	0	0
Fusion**	2,028	952	698	0	0
GEA	1,744	388	191	0	0
GEA - prep.	1,744	388	191	0	0
H ³	52	12	0	0	0
H ³ - sep.	52	12	0	0	0
Hg	8	0	0	0	0
I-129	52	12	0	0	0
I-129 prep.	52	12	0	0	0
ICP**	2,145	988	728	0	0
Ni-63	44	12	0	0	0

NH ₄	17	0	0	0	0
Np-237	52	12	0	0	0
Np - Sep.	52	12	0	0	0
OH	821	262	143	0	0
Oxidation - Cr, Mn	755	235	128	0	0
Particle Size	120	0	60	0	0
pH	49	27	15	0	0
Pu - sep.**	849	717	394	0	0
Pu-238	44	12	0	0	0
Pu-239/240**	849	717	394	0	0
Sample Extrusion**	806	705	394	0	0
Se-79	8	0	0	0	0
Se-79 - prep.	8	0	0	0	0
Settling Rate	44	12	0	0	0
Solubility	44	12	0	0	0
SpG**	805	705	394	0	0
Sr90	1,739	373	176	0	0
Sr90 - sep.	1,739	373	176	0	0
SVOA	670	214	116	0	0
SVOA-Clean	670	214	116	0	0
SVOA-Ext	670	214	116	0	0
Tc-99	52	12	0	0	0
Tc-99 - sep.	52	12	0	0	0
TIC	182	12	63	0	0
TOC - Solids	1,233	579	373	0	0
TOC - Leachable	169	71	50	0	0
Total CN	589	388	280	0	0
Total-alpha**	1,056	858	473	0	0
Total-alpha prep.**	1,056	858	473	0	0
Total-Beta	52	12	0	0	0

Total-Beta prep.	52	12	0	0	0
Total-uranium	44	12	0	0	0
Viscosity	60	30	15	0	0
VOA	670	214	116	0	0
VOA-Ext.&Clean	670	214	116	0	0
Volume % Solids	16	18	15	0	0
Water Leach	1,655	352	164	0	0

Table 11
Yearly Sample Projections by Protocol for the TWRS Program

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Tank Waste	2,063	1,749	1,065	?	?
Vapor	240	135	0	0	0

Table 12
Yearly Sample Projections by Matrix for the TWRS Program

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Tank Waste	2,063	1,749	1,065	?	?
Vapor	240	135	0	0	0

4.3 SOLID WASTE

Sample projections for the Solid Waste Program have been provided for the Central Waste Complex, the Mixed Waste Stabilization Program, WRAP 1, and T-Plant.

Table 13 provides the yearly sample projection by radiation level. Table 14 provides the yearly sample analysis summary. Table 15 provides the yearly sample projections by protocol. Table 16 provides the yearly sample projections by matrix.

TREND

Projections show no change during the next two years in the number of samples. Major program uncertainties in analytical needs exist after FY 1997.

Table 13
Yearly Sample Projections by Radiation Level for the Solid Waste Program

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	58	208	56	103	137
<1 mR/hr B- γ ; <10 nCi/g α	1,587	1,186	?	?	?
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	164	124	2	5	7
<10 mR/hr B- γ ; and <200 nCi/g α	0	11	21	21	21
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
>100 mR/hr B- γ	0	0	0	0	0
>200 nCi/g α	0	0	11	21	21
TOTAL	1,809	1,529	90	150	186

Table 14
Yearly Sample Analysis Summary for the Solid Waste Program

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
VOA/SEMI-VOA	VOA	213	330	82	142	178
	SEMI-VOA	213	330	82	142	178
PEST/PCBs	PESTICIDES	213	330	82	142	178
	PCBs	213	330	82	142	178
OTHER ORGANIC	WTPH-G	213	330	82	142	178
	OIL/GREASE	213	330	82	142	178
INORGANIC	CHLORIDE	245	354	82	142	178
	NITRATE	245	354	82	142	178
	SULFATE	245	354	82	142	178
	IRON	245	354	82	142	178
	MANGANESE	245	354	82	142	178
METALS	ARSENIC	245	354	82	142	178
	CADMIUM	245	354	82	142	178
	CHROMIUM	245	354	82	142	178
	LEAD	245	354	82	142	178
	MERCURY	245	354	82	142	178
RAD. CHEM	GROSS ALPHA	1,809	1,529	90	150	186
	GROSS BETA	1,809	1,529	90	150	186
	TOTAL RADIUM	1,809	1,529	90	150	186
	RADIUM - 226	1,809	1,529	90	150	186
WET CHEM.	CYANIDE	213	330	82	142	178

Table 15
Yearly Sample Projections by Protocol for the Solid Waste Program

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Process Control	1,628	1,223	8	8	8
RCRA	181	306	82	142	178

Table 16
Yearly Sample Projections by Matrix for the Solid Waste Program

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Water	32	24	0	0	0
Air	1,564	1,175	8	8	8
Complex Solid Waste	213	330	82	142	178

4.4 LIQUID EFFLUENTS

Sample projections for the Liquid Waste Disposal program have been provided for the 200 Area Effluent Treatment Facility (200 ETF), the LERF, the ETF Ground Water Monitoring Wells, the 200 Area Treated Effluent Disposal Facility (200 TEDF), the 200 Area Generators, 200 Area TEDF Ground Water and the 300 Area Treated Effluent Disposal Facility (300 TEDF).

Table 17 provides the yearly sample projections by radiation level. Table 18 provides the yearly sample analysis summary. Table 19 provides the yearly sample projections by protocol. Table 20 provides the yearly sample projections by matrix.

Trends

Sample projections for the Liquid Effluents Program for FY 1996 have decreased slightly from 2,200 to 1,928 samples. Sample Projections remain level from FY 1996 through FY 2001.

Table 17
Yearly Sample Projections by Radiation Level for the Liquid Effluents Program

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	846	846	846	846	846
<1 mR/hr B- γ ; <10 nCi/g α	810	810	810	810	810
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	272	272	272	272	272
<10 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
>100 mR/hr B- γ	0	0	0	0	0
>200 nCi/g α	0	0	0	0	0
TOTALS	1,928	1,928	1,928	1,928	1,928

Table 18
Yearly Sample Analysis Summary for the Liquid Effluents Program

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
ORGANIC	VOA SEMI-VOAS	1,046	1,046	1,046	1,046	1,046
INORGANIC		728	728	728	728	728
METALS		936	936	936	936	936
COLIFORM	COLIFORM BOD	24	24	24	24	24
WET CHEMISTRY		932	932	932	932	932

Table 19
Yearly Sample Projections by Protocol for the Liquid Effluents Program

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
RCRA	1,928	1,928	1,928	1,928	1,928

Table 20
Yearly Sample Projections by Matrix for the Liquid Effluents Program

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Water	1,928	1,928	1,928	1,928	1,928

4.5 SPENT NUCLEAR FUELS

Sample projections for the Spent Nuclear Fuels Program are provided for Basin sludge characterization through FY 1997.

Table 21 provides the yearly sample projection by radiation level. Table 22 provides the yearly sample analysis summary. Table 23 provides the yearly sample projections by protocol. Table 24 provides the yearly sample projections by matrix.

Trends

Sample projections for the Spent Nuclear Fuels Program end in FY 1997.

Table 21
Yearly Sample Projections by Radiation Level for the Spent Nuclear Fuels Program

RADIATION LEVEL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	0	0	0	0	0
<1 mR/hr B- γ ; <10 nCi/g α	0	0	0	0	0
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	0	0	0	0	0
<10 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
>100 mR/hr B- γ	30	30	0	0	0
>200 nCi/g α	0	0	0	0	0
TOTALS	30	30	0	0	0

Table 22
Yearly Sample Analysis Summary for the Spent Nuclear Fuels Program

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
ORGANIC	VOA	30	30	0	0	0
	SEMI-VOA	30	30	0	0	0
INORGANIC	AMMONIA	30	30	0	0	0
	CHLORIDE	30	30	0	0	0
	FLUORIDE	30	30	0	0	0
	NITRATE	30	30	0	0	0
	NITRITE	30	30	0	0	0
	PHOSPHATE	30	30	0	0	0
	SULFATE	30	30	0	0	0
	TOC	30	30	0	0	0
	CYANIDE	30	30	0	0	0
	TOTAL SOLIDS	30	30	0	0	0
	ICP METALS	30	30	0	0	0
	URANIUM	30	30	0	0	0
RAD. CHEM	GROSS ALPHA	30	30	0	0	0
	GROSS BETA	30	30	0	0	0
	GEA	30	30	0	0	0
	AM-ISOTOPIC	30	30	0	0	0
	PU-ISOTOPIC	30	30	0	0	0
	SR-90	30	30	0	0	0
	NP-237	30	30	0	0	0
WET CHEMISTRY	NaOH DEMAND	30	30	0	0	0
	pH	30	30	0	0	0
PHYSICAL PROPERTIES	DSC/TGA	30	30	0	0	0
	PARTICLE	30	0	0	0	0
	SIZE	0	0	0	0	0
	PARTICLE	30	30	0	0	0
	SHAPE	0	0	0	0	0
	PARTICLE	30	30	0	0	0
	DENSITY	0	0	0	0	0
	VISCOSITY	30	30	0	0	0
	ZETA	30	30	0	0	0
	POTENTIAL					

Table 23
Yearly Sample Projections by Protocol for the Spent Nuclear Fuels Program

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
RCRA	30	30	0	0	0

Table 24
Yearly Sample Projections by Matrix for the Spent Nuclear Fuels Program

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
SLUDGE	30	30	0	0	0

4.6 SITE MONITORING

Sample projections for the Site Monitoring Program are provided for Environmental Monitoring and the RCRA Groundwater Monitoring Program. Projections for the Bioassay Program were not available.

Table 25 provides the yearly sample projections by radiation level. Table 26 provides the yearly sample analysis summary. Table 27 provides the yearly sample projections by protocol. Table 28 provides the yearly sample projections by matrix.

Trends

Sample projections for the Site Monitoring Program decrease slightly during the next two years (7,395 in FY 1996 to 6,343 in FY 1998).

Table 25
Yearly Sample Projections by Radiation Level for the Site Monitoring Program

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	3,223	2,933	2,786	2,786	2,786
<1 mR/hr B- γ ; <10 nCi/g α	4,172	3,788	3,557	3,557	3,557
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	0	0	0	0	0
<10 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
>100 mR/hr B- γ	0	0	0	0	0
>200 nCi/g α	0	0	0	0	0
TOTALS	7,395	6,721	6,343	6,343	6,343

Table 26
Yearly Sample Analysis Summary for the Site Monitoring Program

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
ORGANIC	VOA/SEMI-VOA	704	641	608	608	608
	PESTICIDES	6	6	6	6	6
	OTHER	154	140	133	133	133
INORGANIC		438	399	378	378	378
METALS		1,206	1,098	1,043	1,043	1,043
RAD. CHEMISTRY		6,942	6,317	6,002	6,002	6,002
WET CHEMISTRY		660	580	571	571	571

Table 27
Yearly Sample Projections by Protocol for the Site Monitoring Program

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
RCRA	7,395	6,721	6,343	6,343	6,343

Table 28
Yearly Sample Projections by Matrix for the Site Monitoring Program

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
WATER	5,125	4,653	4,379	4,379	4,379
AIR	1,785	1,624	1,543	1,543	1,543
BIOTA	256	235	223	223	223
SOILS/SOLIDS	229	209	198	198	198

4.7 INDUSTRIAL HYGIENE

Sample projections for Industrial Hygiene are based on a customer phone survey conducted in October 1995. The categorization by radiation level was based on the assumption that >99% of the samples will be nonradioactive, while a small number (<1%) may be slightly radioactive.

Table 29 provides the yearly sample projection by radiation level. Table 30 provides the yearly sample analysis summary. Table 31 provides the yearly sample projections by protocol. Table 32 provides the yearly sample projections by matrix.

Trends

Projections will result in a four-fold decrease in FY 96 of analytical services from FY 1994.

Table 29
Yearly Sample Projections by Radiation Level for Industrial Hygiene

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	3,960	3,960	3,960	3,960	3,960
<1 mR/hr B- γ ; <10 nCi/g α	40	40	40	40	40
1 mR/hr B- γ to <10 mR/hr B- γ ; and <10 nCi/g α	0	0	0	0	0
<10 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
10 mR/hr B- γ to <100 mR/hr B- γ ; and <200 nCi/g α	0	0	0	0	0
>100 mR/hr B- γ	0	0	0	0	0
>200 nCi/g α	0	0	0	0	0
TOTALS	4,000	4,000	4,000	4,000	4,000

Table 30
Yearly Sample Analysis Summary for Industrial Hygiene

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
INDUSTRIAL HYGIENE	GENERAL	4,000	4,000	4,000	4,000	4,000

Table 31
Yearly Sample Projections by Protocol for Industrial Hygiene

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
INDUSTRIAL HYGIENE	4,000	4,000	4,000	4,000	4,000

Table 32
Yearly Sample Projections by Matrix for Industrial Hygiene

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
SLUDGES	3,380	3,380	3,380	3,380	3,380
AIR	620	620	620	620	620

4.8 PROCESS SUPPORT

Sample projections for Process Support are provided for the Plutonium Finishing Plant, B-Plant and the Waste Encapsulation and Storage Facility (WESF), PUREX, Environmental (Effluent Monitoring and Near Field Monitoring), and Stack Monitoring. Projections for Development and Room Air Monitoring were not available.

Table 33 provides the yearly sample projection by radiation level. Table 34 provides the yearly sample analysis summary. Table 35 provides the yearly sample projections by protocol. Table 36 provides the yearly sample projections by matrix. Table 37 provides the yearly sample projections by Facility for Process Support.

Trends

Projections will result in a decrease in FY 96 of analytical services from FY 1995.

Table 33
Yearly Sample Projections by Radiation Level for Process Support

Radiation Level	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Non-Radioactive	325	301	301	301	301
<1 mR/hr β - γ ; <10 nCi/g α	21,101	20,974	20,857	20,841	20,841
1 mR/hr β - γ to <10 mR/hr β - γ ; and <10 nCi/g α	16	24	16	16	16
<10 mR/hr β - γ ; and <200 nCi/g α	55	23	15	15	15
10 mR/hr β - γ to <100 mR/hr β - γ ; and <200 nCi/g α	56	56	56	56	56
>100 mR/hr β - γ	30	30	30	30	30
>200 nCi/g α	748	748	748	748	748
TOTALS	22,411	22,956	22,023	22,007	22,007

Table 34
Yearly Sample Analysis Summary for Process Support

ANALYSIS CATEGORY	ANALYSIS	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
ORGANIC	VOA	40	24	24	24	24
	SEMI-VOA	40	24	24	24	24
	PESTICIDES	6	6	6	6	6
	PCBs	16	16	16	16	16
INORGANIC	GENERAL	294	168	168	168	168
	TOC	115	115	115	115	115
	ICP METALS	506	506	506	506	506
	NITRATE	20	8	8	8	8
RAD. CHEM	GENERAL	3,473	3,218	3,035	3,069	3,069
WET CHEMISTRY	GENERAL	722	562	537	537	537

Table 35
Yearly Sample Projections by Protocol for Process Support

PROTOCOL	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
RCRA	154	138	138	138	138
PROCESS CONTROL	22,257	22,018	21,885	21,869	21,869

Table 36
Yearly Sample Projections by Matrix for Process Support

MATRIX	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
WATER	1,190	1,021	954	938	938
AIR	20,558	20,462	20,421	20,421	20,421
SOLID	663	653	648	648	648

Table 37
Yearly Sample Projections by Facility for Process Support

FACILITY	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
PUREX	218	58	0	0	0
PFP	19,484	19,484	19,484	19,484	19,484
B PLANT/WESF	264	169	94	78	78

Appendix 1:

Environmental Restoration Program Inputs

ER

FROM THE DESK OF:

MICHAEL E DAVID
ERC SAMPLE MANAGEMENT
(509) 372-9512/B1-35

TO:
JA Lerch B1-35

DATE: November 13, 1995

SUBJECT: FY 97 - 2001 SAMPLE PROJECTIONS

Please see edited sample projection tables. The new data includes field screening and 222-S information.

Sample Totals

- FY 96: 1508 samples x 20% = 1810 samples total
- FY 97: 1223 samples x 20% = 1468 samples total
- FY 98: 1151 samples x 20% = 1381 samples total
- FY 99: 1205 samples x 20% = 1446 samples total
- FY 00: 1285 samples x 20% = 1542 samples total
- FY 01: 1285 samples x 20% = 1542 samples total

Field Screening Totals

- FY 96: 2387 samples x 20% = 2864 samples total
- FY 97: 597 samples x 20% = 716 samples total
- FY 98: 397 samples x 20% = 475 samples total
- FY 99: 297 samples x 20% = 356 samples total
- FY 00: 297 samples x 20% = 356 samples total
- FY 01: 297 samples x 20% = 356 samples total

222-S Sample Totals

- FY 96: 192 samples x 20% = 230 samples total
- FY 97: 192 samples x 20% = 230 samples total
- FY 98: 192 samples x 20% = 230 samples total
- FY 99: 312 samples x 20% = 374 samples total
- FY 00: 312 samples x 20% = 374 samples total
- FY 01: 312 samples x 20% = 374 samples total

FROM THE DESK OF:

MICHAEL E DAVID *med*
ERC SAMPLE MANAGEMENT
(509) 372-9512/B1-35

TO:

JA Lerch B1-35

DATE: November 10, 1995

SUBJECT: FY 97 - 2001 SAMPLE PROJECTIONS

Please see edited sample projection tables. The new data includes field screening and 222-S information.

Sample Totals - *commercial jobs*

- FY 96: 1508 samples x 20% = 1810 samples total
- FY 97: 1223 samples x 20% = 1468 samples total
- FY 98: 1151 samples x 20% = 1381 samples total
- FY 99: 1205 samples x 20% = 1446 samples total
- FY 00: 1285 samples x 20% = 1542 samples total
- FY 01: 1285 samples x 20% = 1542 samples total

Field Screening Totals

- FY 97: 597 samples x 20% = 716 samples total
- FY 98: 397 samples x 20% = 475 samples total
- FY 99: 297 samples x 20% = 356 samples total
- FY 00: 297 samples x 20% = 356 samples total
- FY 01: 297 samples x 20% = 356 samples total

222-S Sample Totals

- FY 97: 192 samples x 20% = 230 samples total
- FY 98: 192 samples x 20% = 230 samples total
- FY 99: 312 samples x 20% = 374 samples total
- FY 00: 312 samples x 20% = 374 samples total
- FY 01: 312 samples x 20% = 374 samples total

Anticipated Analytical Services Work Load - FY 96
Revision 0

Project	Planned Action	Contact/ Sig	Schedule Date	% Conf	Matrix	Planned # of Samples Other Lab	Analyte(s)	Method (Other)	Required Detection Limit (Other)	Revised # of Samples FS	Analyte(s)	FSEAL	FSEAL Method	Required Detection Limit (FSEAL)	FS Field Days	# of FS Personnel Required
D Ponds	ERA	G. Machem	July	75	Soil	7	TC/CP Metals Mercury PCBs PAHs C-137 EPA-152, 154, 155	6010/7000 EPA-821 EPA-821 EPA-821 EPA-821 EPA-821 EPA-821	Var. MTCAL B 24 ppb MTCAL B Var. MTCAL B 15 ppb MTCAL B 15 ppb MTCAL B 15 ppb MTCAL B 15 ppb MTCAL B	25	TC/CP Metals Mercury PCBs PAHs C-137 EPA-152, 154, 155	EAL? FSEAL FSEAL FSEAL FSEAL FSEAL FSEAL	Hg Analyzer/AA 40201A LA-508-501 LA-508-501 LA-508-501 LA-508-501 LA-508-501	Var. MTCAL B 24 ppb MTCAL B Var. MTCAL B 15 ppb MTCAL B 15 ppb MTCAL B 15 ppb MTCAL B 15 ppb MTCAL B	10	1 R M
200-BP-5 GW	GW Monitoring	D. Eln	April	80	GW	40	CP Metals Mercury PCBs PAHs C-137 EPA-152, 154, 155	CLP CLP CLP CLP CLP CLP CLP	Var. CRCL 5 ppb Var. POL 5 ppb 5 ppb 5 ppb 5 ppb	0	CP Metals Mercury PCBs PAHs C-137 EPA-152, 154, 155					
200-2P-2	Waste Chara	R. Trumbauer	June/July	80	Soil, Gas Vapor	30	VOA SVOA PU	8240 8270 ITAS-RD-3209	Var. POL Var. POL 1 pc/g	Undetermined	VOA SVOA PU	FS FS EAL	G C 77 LA-535-502	ppbs	21 (5 days)	2 D J R K
200-LP-1 IRM	Process/Sampling PT Waste Drain GW Monitoring	C. Wietrich	Oct-May Periodic Oct-Sep	80 80 80	Water Rain GW	2m-18 2m-18 48	VOA Total U Tc-99 VOA Total U Tc-99 VOA Total U Tc-99	8240 ITAS-RD-4200 ITAS-IT-RS-0001 8240 ITAS-RD-4200 ITAS-IT-RS-0001 8240 ITAS-RD-4200 ITAS-IT-RS-0001	Var. POL 0.1 ug/L 15 pc/L Var. POL 1 pc/L 15 pc/L Var. POL 0.1 ug/L 15 pc/L	4m-178 0 98	VOA Total U Tc-99 VOA Total U Tc-99 VOA Total U Tc-99	FS Project F G EAL? (222.5) FS Project F G EAL? (222.5)	G C Chem-Check 77 G C Chem-Check 77	ppbs 1 ppb 150 pc/L ppbs 1 ppb 150 pc/L	40 31	1 D J 1 D J

Anticipated Analytical Services Work Load - FY 96
Revision 0

Project	Planned Action	Contact/ Sig	Scheduled Date	% Conf.	Matrix	Planned # of Samples Offsite Lab	Analyte(s)	Method (Offsite)	Required Detection Limit (Offsite)	Planned # of Samples FS	Analyte(s)	FSEAL	FSEAL Method	Required Detection Limit (FSEAL)	FS Field Days	# of FS Personnel Required
100-KR-1 Source	None	A. Krug														
100-KR-2 Source	None	A. Krug														
100-FR-1 Source	None	A. Krug														
100-FR-2 Source	None	A. Krug														
200-PB-11	None	R. Trenbarger														
100-BC-5	GW Monitoring	B. Peterson	Oct. April	95	GW	60/round	ICP/AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Trium C-14	CLP CLP 300 ITAS-RD-3214 ITAS-RD-3214 ITAS-RD-3204 ITAS-HI-RS-0001 ITAS-RD-3205 ITAS-RD-3263	Var.: CRDL 0.2 ppb Var.: POL 3 pCi/L 4 pCi/L 2 pCi/L 15 pCi/L 400 pCi/L 200 pCi/L	0						
100-FR-3	GW Monitoring	B. Peterson	Nov. May	95	GW	24/round	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Trium C-14	CLP CLP 300 CLP CLP ITAS-RD-3214 ITAS-RD-3214 ITAS-RD-3204 ITAS-RD-3205 ITAS-RD-3263	Var.: CRDL Var.: CRDL Var.: POL Var.: CRDL 3 pCi/L 4 pCi/L 2 pCi/L 400 pCi/L 200 pCi/L	0						
100-HR-3	GW Monitoring	B. Peterson	Jan. July	95	GW	58/round	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Trium	5010 300 9030 350.1 ITAS-RD-3214 ITAS-RD-3214 ITAS-RD-3204 ITAS-RD-3205	Var.: POL Var.: POL 1 ppm 0.05 ppm 3 pCi/L 4 pCi/L 2 pCi/L 400 pCi/L	0						

Anticipated Analytical Services Work Load - FY 96
Revision 0

Revision 0

[illegible]

Anticipated Analytical Services Work Load - FY 96
Revision 0

Project	Planned Action	Contact/ Sig	Scheduled Date	% Conf	Matrix	Planned # of Samples Offsite Lab	Analyte(s)	Method (Offsite)	Required Detection Limit (Offsite)	Planned # of Samples FS	Analyte(s)	FS/EAL	FS/EAL Method	Required Detection Limit (FS/EAL)	FS Field Days	# of FS Personnel Required
300-FF-2	GW Monitoring	M. Galgoul	March	80	GW	10	ICP/AA Metals VOA Anions Gross Alpha Gross Beta Total U	6010/7000 8240 300 ITAS-RD-3214 ITAS-RD-3214 ITAS-RD-4200	Var. POL Var. POL Var. POL 3 pCi/L 4 pCi/L 0.1 ug/L	0						
300-FF-5	GW Monitoring	R. Carlson	June	60	GW	26	ICP/AA Metals VOA Gross Alpha Gross Beta Total U	6010/7000 8240 ITAS-RD-3214 ITAS-RD-3214 ITAS-RD-4200	Var. POL Var. POL 3 pCi/L 4 pCi/L 0.1 ug/L	0						
ERDF	GW Monitoring	F. Roach	Undetermined	75	TW	33	Appen. IX ICP/AA Metals TCLP Metals VOA Anions Rad	6010/7000 6010/7000 8240 300 Lab Specific	Var. POL Var. POL Var. POL Var. POL Var.	0						
100-NR-2	GW Monitoring	J. Borghese	March/Sept	90	GW	27/round	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	6010 300 413.1 418.1 120.1 180.1 9040 ITAS-RD-3214 ITAS-RD-3214 ITAS-RD-3204 ITAS-RD-3219 ITAS-RD-3205	Var. POL Var. POL Var. POL 2.5 ppm 100 umhos 100 NTU 3 pCi/L 4 pCi/L 2 pCi/L 25 pCi/L 400 pCi/L	0						
	N-Springs Perl Mont	J. Borghese	Monthly	100	GW	18	Sr-90 Co-60	ITAS-RD-3204 ITAS-RD-3219	2 pCi/L 25 pCi/L	14 21/wk	TPH Calcium Sulfate Magnesium Sr-90	FS FS FS FS EAL	GAC Mech Mech Mech LA-535-503		6/month	1 S, R, M

WHC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load - FY 96
Revision 0

[illegible]

Anticipated Analytical Services Work Load FY 97

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
200-BP-5	GW Monitoring	DB Erb	GW	30	ICP Metals Selenium Anions Cyanide Gross Alpha Gross Beta Pu-238, 239, 240 Sr-90 Gamma Spec Total U Tritium Tc-99	CERCLA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	7	VOA Nitrate	CERCLA
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	90	VOA ICP Metals	RCRA
200-ZP-2	Waste Designation	GC Henckel	Other	12	VOA SVOA ICP Metals Anions	RCRA
200-UP-1	IRM	CD Wittreich	GW	70	Total Uranium Tc-99	CERCLA
200-UP-1	IRM	CD Wittreich	GW	34	Total Uranium Tc-99 Anions	RCRA
300-F F-1/300-FF-5	GW Monitoring	RA Carlson	GW	12	ICP Metals Total Uranium	RCRA
300-FF-2	GW Monitoring	MJ Galgoul	GW	40	ICP Metals Anions Gross Alpha Gross Beta Total Uranium	CERCLA

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Anticipated Analytical Services Work Load FY 97

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-NR-2	GW Monitoring	JV Borghese	GW	54	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	CERCLA
100-BC-5	GW Monitoring	RE Peterson	GW	120	ICP Metals AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Tritium C-14	CERCLA
100-FR-3	GW Monitoring	RE Peterson	GW	50	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 97

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-HR-3	GW Monitoring	RE Peterson	GW	116	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Tritium	CERCLA
100-KR-4	GW Monitoring	RE Peterson	GW	116	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100 Area Seeps	GW Monitoring	RE Peterson	GW	168	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 97

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-Areas	GW Monitoring	RE Peterson	Surface Water	56	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-Areas	GW Monitoring	RE Peterson	Sediment	28	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
D&D	Waste Designation	DB Encke	All	100	TCLP Metals Mercury PCB Ra-226 Co-60 Cs-137 Eu-152, 154, 155	RCRA

Anticipated Analytical Services Work Load FY 97

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-N Waste Pad	Waste Designation	RJ Johnson	All	120	TCLP Metals ICP Metals AA Metals Mercury Anions pH VOA SVOA PCB TOX	RCRA

Anticipated Analytical Services Work Load FY 98

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
200-BP-5	GW Monitoring	DB Erb	GW	30	ICP Metals Selenium Anions: Cyanide Gross Alpha Gross Beta Pu-238, 239, 240 Sr-90 Gamma Spec Total U Tritium Tc-99	CERCLA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	7	VOA Nitrate	CERCLA
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	90	VOA ICP Metals	RCRA
200-ZP-2	Waste Designation	GC Henckel	Other	12	VOA SVOA ICP Metals Anions	RCRA
200-UP-1	IRM	CD Wittreich	GW	70	Total Uranium Tc-99	CERCLA
200-UP-1	IRM	CD Wittreich	GW	34	Total Uranium Tc-99 Anions	RCRA
300-FF-1/300-FF-5	GW Monitoring	RA Carlson	GW	12	ICP Metals Total Uranium	RCRA
300-FF-2	GW Monitoring	MJ Galgoul	GW	40	ICP Metals Anions Gross Alpha Gross Beta Total Uranium	CERCLA

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Anticipated Analytical Services Work Load FY 98

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-NR-2	GW Monitoring	JV Borghese	GW	66	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	CERCLA
100-BC-5	GW Monitoring	RE Peterson	GW	136	ICP Metals AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Tritium C-14	CERCLA
100-FR-3	GW Monitoring	RE Peterson	GW	50	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 98

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-HR-3	GW Monitoring	RE Peterson	GW	116	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Tritium	CERCLA
100-KR-4	GW Monitoring	RE Peterson	GW	116	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100 Area Seeps	GW Monitoring	RE Peterson	GW	168	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 98

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-Areas	GW Monitoring	RE Peterson	Surface Water	56	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-Areas	GW Monitoring	RE Peterson	Sediment	28	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-N Waste Pad	Waste Designation	RJ Johnson	All	120	TCLP Metals ICP Metals AA Metals Mercury Anions pH VOA SVOA PCB TOX	RCRA

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Anticipated Analytical Services Work Load FY 99

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
200-BP-5	GW Monitoring	DB Erb	GW	30	1	ICP Metals Selenium Anions Cyanide Gross Alpha Gross Beta Pu-238, 239, 240 Sr-90 Gamma Spec Total U Tritium Tc-99	CERCLA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	7	1	VOA Nitrate	CERCLA
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	90	1	VOA ICP Metals	RCRA
200-ZP-2	Waste Designation	GC Henckel	Other	12	1	VOA SVOA ICP Metals Anions	RCRA
200-UP-1	IRM	CD Wittreich	GW	70	2	Total Uranium Tc-99	CERCLA
200-UP-1	IRM	CD Wittreich	GW	34	2	Total Uranium Tc-99 Anions	RCRA

WHC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 99

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-NR-2	GW Monitoring	JV Borghese	GW	66	1	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	CERCLA
100-BC-5	GW Monitoring	RE Peterson	GW	136	1	ICP Metals AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Tritium C-14	CERCLA
100-FR-3	GW Monitoring	RE Peterson	GW	156	1	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 99

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-HR-3	GW Monitoring	RE Peterson	GW	116	1	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Tritium	CERCLA
100-KR-4	GW Monitoring	RE Peterson	GW	116	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100 Area Seeps	GW Monitoring	RE Peterson	GW	168	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA

WMC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 99

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-Areas	GW Monitoring	RE Peterson	Surface Water	56	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-Areas	GW Monitoring	RE Peterson	Sediment	28	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-N Waste Pad	Waste Designation	RJ Johnson	All	120	1, 2, or 3	TCLP Metals ICP Metals AA Metals Mercury Anions pH VOA SVOA PCB TOX	RCRA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	31	1	VOA Nitrate	Field
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	194	1	VOA	Field
200-ZP-1	Treatability Study	JR Freeman-Pollard	Air	72	1	VOA	Field

WMC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 99

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Priority
200-UP-1	IRM	CD Wittreich	GW	312	2	Total Uranium Tc-99	222-S

WHC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 2000

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
200-BP-5	GW Monitoring	DB Erb	GW	30	1	ICP Metals Selenium Anions Cyanide Gross Alpha Gross Beta Pu-238, 239, 240 Sr-90 Gamma Spec Total U Tritium Tc-99	CERCLA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	7	1	VOA Nitrate	CERCLA
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	90	1	VOA ICP Metals	RCRA
200-ZP-2	Waste Designation	GC Henckel	Other	12	1	VOA SVOA ICP Metals Anions	RCRA
200-UP-1	IRM	CD Wittreich	GW	70	2	Total Uranium Tc-99	CERCLA
200-UP-1	IRM	CD Wittreich	GW	34	2	Total Uranium Tc-99 Anions	RCRA

MHC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 2000

WHC-SD-WM-TI-608, Rev. 2

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-NR-2	GW Monitoring	JV Borghese	GW	66	1	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	CERCLA
100-BC-5	GW Monitoring	RE Peterson	GW	136	1	ICP Metals AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Tritium C-14	CERCLA
100-FR-3	GW Monitoring	RE Peterson	GW	156	1	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 2000

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-HR-3	GW Monitoring	RE Peterson	GW	116	1	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Tritium	CERCLA
100-KR-4	GW Monitoring	RE Peterson	GW	116	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100 Area Seeps	GW Monitoring	RE Peterson	GW	168	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 2000

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-Areas	GW Monitoring	RE Peterson	Surface Water	56	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-Areas	GW Monitoring	RE Peterson	Sediment	28	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-N Waste Pad	Waste Designation	RJ Johnson	All	200	1, 2, or 3	TCLP Metals ICP Metals AA Metals Mercury Anions pH VOA SVOA PCB TOX	RCRA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	31	1	VOA Nitrate	Field
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	194	1	VOA	Field
200-ZP-1	Treatability Study	JR Freeman-Pollard	Air	72	1	VOA	Field

Anticipated Analytical Services Work Load FY 2000

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
200-UP-1	IRM	CD Wittreich	GW	312	2	Total Uranium Tc-99	222-S

WHC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
200-BP-5	GW Monitoring	DB Erb	GW	30	1	ICP Metals Selenium Anions Cyanide Gross Alpha Gross Beta Pu-238, 239, 240 Sr-90 Gamma Spec Total U Tritium Tc-99	CERCLA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	7	1	VOA Nitrate	CERCLA
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	90	1	VOA ICP Metals	RCRA
200-ZP-2	Waste Designation	GC Henckel	Other	12	1	VOA SVOA ICP Metals Anions	RCRA
200-UP-1	IRM	CD Wittreich	GW	70	2	Total Uranium Tc-99	CERCLA
200-UP-1	IRM	CD Wittreich	GW	34	2	Total Uranium Tc-99 Anions	RCRA

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Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-NR-2	GW Monitoring	JV Borghese	GW	66	1	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	CERCLA
100-BC-5	GW Monitoring	RE Peterson	GW	136	1	ICP Metals AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Tritium C-14	CERCLA
100-FR-3	GW Monitoring	RE Peterson	GW	156	1	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Tritium C-14	CERCLA

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Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-HR-3	GW Monitoring	RE Peterson	GW	116	1	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Tritium	CERCLA
100-KR-4	GW Monitoring	RE Peterson	GW	116	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100 Area Seeps	GW Monitoring	RE Peterson	GW	168	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA

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Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
100-Areas	GW Monitoring	RE Peterson	Surface Water	56	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-Areas	GW Monitoring	RE Peterson	Sediment	28	1	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-N Waste Pad	Waste Designation	RJ Johnson	All	200	1, 2, or 3	TCLP Metals ICP Metals AA Metals Mercury Anions pH VOA SVOA PCB TOX	RCRA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	31	1	VOA Nitrate	Field
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	194	1	VOA	Field
200-ZP-1	Treatability Study	JR Freeman-Pollard	Air	72	1	VOA	Field

MHC-SD-MM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Rad Category	Analyte(s)	Protocol
200-UP-1	IRM	CD Wittreich	GW	312	2	Total Uranium Tc-99	222-S

WHC-SD-WM-TI-608, Rev. 2

Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
200-BP-5	GW Monitoring	DB Erb	GW	30	ICP Metals Selenium Anions Cyanide Gross Alpha Gross Beta Pu-238, 239, 240 Sr-90 Gamma Spec Total U Tritium Tc-99	CERCLA
200-ZP-1	GW Monitoring	JR Freeman-Pollard	GW	7	VOA Nitrate	CERCLA
200-ZP-1	Treatability Study	JR Freeman-Pollard	GW	90	VOA ICP Metals	RCRA
200-ZP-2	Waste Designation	GC Henckel	Other	12	VOA SVOA ICP Metals Anions	RCRA
200-UP-1	IRM	CD Wittreich	GW	70	Total Uranium Tc-99	CERCLA
200-UP-1	IRM	CD Wittreich	GW	34	Total Uranium Tc-99 Anions	RCRA

Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-NR-2	GW Monitoring	JV Borghese	GW	66	ICP Metals Anions Oil & Grease TPH Conductivity Turbidity pH Gross Alpha Gross Beta	CERCLA
100-BC-5	GW Monitoring	RE Peterson	GW	136	ICP Metals AA Metals Mercury Anions Gross Alpha Gross Beta Sr-90 Tc-99 Tritium C-14	CERCLA
100-FR-3	GW Monitoring	RE Peterson	GW	156	ICP Metals AA Metals Anions VOA Gross Alpha Gross Beta Sr-90 Tritium C-14	CERCLA

Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-HR-3	GW Monitoring	RE Peterson	GW	116	ICP Metals Anions Sulfide Ammonia Gross Alpha Gross Beta Sr-90 Tritium	CERCLA
100-KR-4	GW Monitoring	RE Peterson	GW	116	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100 Area Seeps	GW Monitoring	RE Peterson	GW	168	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA

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Anticipated Analytical Services Work Load FY 2001

Project	Planned Action	Contact	Matrix	Planned # of Samples Offsite	Analyte(s)	Protocol
100-Areas	GW Monitoring	RE Peterson	Surface Water	56	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-Areas	GW Monitoring	RE Peterson	Sediment	28	ICP Metals Anions Gross Alpha Gross Beta Sr-90 U-235, 238 Gamma Spec. Tritium C-14	CERCLA
100-N Waste Pad	Waste Designation	RJ Johnson	All	200	TCLP Metals ICP Metals AA Metals Mercury Anions pH VOA SVOA PCB TOX	RCRA

WHC-SD-MM-TI-608, Rev. 2

Appendix 2:

TWRS Program Inputs

TWRS

Analytical Requirements for Vapor Issues June 1, 1995

Reference: WHC-SD-WM-DQO-002 rev. 1

Primary Analyses

Analyte	Suggested Method	Samples	Decision Threshold	Laboratory Uncertainty
1 Organic Speciation	GC/MS (TO-14)	SUMMA	50% IDLH	< 30%
2 CO ₂ , CO, CH ₄ , H ₂ , N ₂ O	GC/TCD or GC/MS	SUMMA	> 20% LFL	< 30%
3 NO, NO ₂	IC	Sorbent Trap	> 50ppm: > 10ppm	< 30%
4 H ₂ O	Gravimetric	Sorbent Trap	N/A	< 30%
5 NH ₃	Selective Electrode	Sorbent Trap	> 150 ppm	< 30%
6 Organic Speciation	GC/MS	Triple Sorbent	50% IDLH	< 30%
7 Total Alpha		HEPA Filter	> 60 pCi/g	< 30%
8 Total Beta		HEPA Filter	> 200 pCi/g	< 30%
9 Total Gamma		HEPA Filter	> 200 pCi/g	< 30%
10 Tritium	Liquid Scin.	Tritium Trap		
11 Organics	GC/FID	Field On-line		

Tanks
 # Samples
 determs. - Analyte

	FY 96
	48
	X5
	240
1	48
2	48
3	48
4	48
5	48
6	48
7	48
8	48
9	48
10	4

FY 97
 27
 135
 27
 ↓

FY 98
 0
 0
 0
 ↓

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Dept.	Phone #	
Fax #	Fax #	323-7113

Appendix 3:

Solid Waste Program Inputs

Solid Waste

PROJECTED SAMPLING REQUIREMENTS FOR THE SOLID WASTE DISPOSAL DIVISION

As requested by Analytical Services Internal Memo #75720-95-011 dated October 9, 1995 from S.M. Joyce, Senior Principal Scientist. Sampling support for the Solid Waste Disposal program will be required for the following facilities:

1. Central Waste Complex (CWC)
2. Mixed Waste Stabilization Treatment Program (MWSTP)
3. Waste Receiving and Processing 1 (WRAP 1)
4. TRU Retrieval
5. T-Plant

Each program or facility will be discussed separately and the time basis will be in Fiscal Years. The sample breakdown contained in this update is only an estimate and based upon criteria established by Analytical Services. In order to compile better data more detailed analysis using health physics expertise for the waste matrix characterization and isotopic decay assumptions will be needed.

GENERAL ASSUMPTIONS:

- * The estimate for CWC of 8 samples per year is projected to be constant through 2001 and will be 100% category 1. It is also assumed that sample requirements affecting CWC will not change through 2001.
- T Plant sampling is expected to be reduced by 25% in FY 97 and decrease each year due primarily to less liquid waste generated and stored. T Plant is unable to project past FY 97 due to uncertainties associated in process developments.
- * T Plant has the potential for discovering uncharacterized waste streams which require sampling.
- WRAP 1 LLW processing begins operation in 3-97, a 50% throughput for the first year.
- * WRAP 1 TRU processing begins operation in 3-98, a 50% throughput for the first year.
- * Samples taken from separate packages in a single drum in WRAP 1 will be composited to one sample.
- * No planned funding for TRU Retrieval.

Post-It™ brand fax transmittal memo 7671		# of pages > 6
To	KEN HLAOSK	
Co.		
Dept.	Phone # 372-3201	
Fax # 373-713	Fax #	

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CENTRAL WASTE COMPLEX:

The only planned samples to be sent to the lab by the Central Waste Complex (CWC) are water samples from the Mixed Waste Pad or building floors to be sampled for total Alpha and Beta to verify acceptable release levels are met. There is the potential for lab analysis of air sample filters or swipe surveys but only under unexpected conditions therefore it is impossible to project an annual quantity for these possible samples.

The 1996 funding level for Analytical Services to support CWC is approximately \$2,200.00 and comes from the CWC expense account A4A01. Since the mission and scope of CWC is not expected to change, the estimate of 8 samples per year is projected to be constant through 2001 and will be 100% category 1. It is also assumed that sample requirements affecting CWC do not change through 2001.

This information was derived from personal communication via CC:Mail from Robert M. Irwin.

MIXED WASTE STABILIZATION TREATMENT PROGRAM (MWSTP):**Basis:**

These FY1996 analysis activities are for the Direct Disposal effort under the Mix-Waste Stabilization Treatment Program (MWSTP). Samples to be analyzed are from the 183-H Solidified Liquid waste stream (depicted in WHC-SD-W100-RD-001 Rev-1, Waste Stream "1A") and the Tank Farms Backlog Soils waste stream (depicted in DOE-RL-95-35). This activity received FY1996 MYPP funding under Task Packages 1A12010L05 and 1A12010L10.

Basis:

This FY1997 analysis activity is for the Direct Disposal effort under the Mix-Waste Stabilization Treatment Program (MWSTP). Samples to be analyzed are from the 183-H Solidified Liquid waste stream (depicted in WHC-SD-W100-RD-001 Rev-1, Waste Stream "1A"). The FY1996 MYPP has established projected budget for this activity in FY1997.

Basis:

The first FY1998 analysis activity is for the Commercial Stabilization Treatment effort under the Mix-Waste Stabilization Treatment Program (MWSTP). Samples to be analyzed will come from mix-waste currently being stored in the Hanford Central Waste Complex. The waste is characterized in WHC-SD-W100-RD-001 Rev-1, Feed Streams "5C1" and "9A". The second FY1998 analysis activity is for the Commercial Thermal Treatment effort under the SWD Mixed Waste Treatment Team (depicted in WHC-SD-W242-ES-003 Rev-0). The FY1996 MYPP has established projected budget for these activities in FY1998.

MWSTP Continued:

Basis:

The first FY1999 analysis activity is for the Commercial Stabilization Treatment effort under the Mix-Waste Stabilization Treatment Program (MWSTP). Samples to be analyzed will come from mix-waste currently being stored in the Hanford Central Waste Complex. The waste is characterized in WHC-SD-W100-RD-001 Rev-1, Feed Streams "5C1" and "9A". The second FY1999 analysis activity is for the Commercial Thermal Treatment effort under the SWD Mixed Waste Treatment Team (depicted in WHC-SD-W242-ES-003 Rev-0). The FY1996 MYPP has established projected budget for these activities in FY1999.

Basis:

The first and second FY2000 analysis activities are for the Commercial Stabilization Treatment effort under the Mix-Waste Stabilization Treatment Program (MWSTP). Samples to be analyzed will come from mix-waste currently being stored in the Hanford Central Waste Complex and treated waste being received back from the treatment vendor. The waste is characterized in WHC-SD-W100-RD-001 Rev-1, Feed Streams "5C1" and "9A". The third FY2000 analysis activity is for the Commercial Thermal Treatment effort under the SWD Mixed Waste Treatment Team (depicted in WHC-SD-W242-ES-003 Rev-0). The FY1996 MYPP has established projected budget for these activities in FY2000.

Basis:

The first and second FY2001 analysis activities are for the Commercial Stabilization Treatment effort under the Mix-Waste Stabilization Treatment Program (MWSTP). Samples to be analyzed will come from mix-waste currently being stored in the Hanford Central Waste Complex and treated waste being received back from the treatment vendor. The waste is characterized in WHC-SD-W100-RD-001 Rev-1, Feed Streams "5C1" and "9A". The third and fourth FY2001 analysis activities are for the Commercial Thermal Treatment effort under the SWD Mixed Waste Treatment Team (depicted in WHC-SD-W242-ES-003 Rev-0). The FY1996 MYPP has established projected budget for these activities in FY2001.

FY-1996	FY-1997	FY-1998	FY-1999	FY-2000	FY-2001
*53	200	50	100	135	425
95% CAT 1	100% CAT 1	95% CAT 1	95% CAT 1	95% CAT 1	95% CAT 1
5% CAT 3		5% CAT 3	5% CAT 3	5% CAT 3	5% CAT 3

3 of the 50 samples will be 100% radiation category 1 with a waste matrix of solidified liquids. The other 50 samples will consist of soils as the waste matrix and 95% will be category 1, 5% will be category 3.

These sample number projections were derived from personal communication via CC:Mail from Dean Nester.

WRAP-1:

WRAP-1 sample projections numbers shown below remain unchanged from previous submittal.

Samples will be primarily miscellaneous dry solid waste (including particulates) with some liquids. Sample volumes will be 250ml to 1 liter. Samples will be primarily categories 2 through 4 but some small amounts of categories 5-7 will also be present.

	<u>FY-1997</u>	<u>FY-1998</u>	<u>FY-1999</u>	<u>FY-2000</u>	<u>FY-2001</u>
LLW NG	11	21	21	21	21
TRU NG		11	21	21	21

These sample number projections were derived from personal communication via CC:Mail from Bernadette (Bernie) Mayancsik.

T PLANT:

The total projected allotment for FY 96 onsite sampling services is 1746 samples. Sampling is expected to be reduced by 25% in FY 97 and decrease each year due primarily to less liquid waste generated and stored. T Plant is unable to project past FY 97 due to uncertainties associated in process developments.

AIR SAMPLES

T Plant has 29 air sample locations (6 fixed heads, 19 cams and 3 record samplers). These are sampled weekly for total alpha and gross beta. All are sent to 222S laboratory for analysis.

Efforts for zone reduction will require special sampling similarly, any operation or maintenance procedure or event which may present an unusual situation, contamination or possible release will also result in special sampling.

Total: 1,456 routine + 100 special = 1,556

WATER/ENVIRONMENTAL

T Plant does not require a facility effluent monitoring program for point source discharges or raw water. Environmental sampling is conducted by effluent monitoring with monies provided through a site wide cost account. T Plant does not anticipate additional sampling to waste or the environment.

T-PLANT CONTINUED:

T Plant has the potential for discovering uncharacterized waste streams which require sampling. These may include T Plant generated waste or product, waste accepted at the T Plant facility for processing/storage, equipment decontamination, and spills. The analyte list varies according to suspected waste components and waste matrix.

Inorganic: Total ICP Metals, PH, and Total Activity

Total: 100 total activities + 25 specials = 125 samples

Every other week (regular) tests are required with the following analyte list: total activity, Fluorine, Nitrate, Phosphoric Acid, and Sulfuric Acid. Also included GEA, pH, Chloride, conductivity.

Total: 26 samples - contingent upon return to regular sampling.

T Plant tanks and sumps are sampled to meet the requirements of the safety and analysis report as well as for waste characterization.

75

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T-PLANT CONTINUED:

Sludges from 5-7 is sampled every six (6) months and 15-1 is sampled after transfer of liquids to railcar but before adding any liquid to the tank. Liquids in tank 15-1 are sampled before transfer to railcar.

Total: 2 special + 6 RCRA protocol + 25 Total Activity = 33

Waste Water System-
4 Indicator samples
2 Expanded samples

Total: 6

PLEASE NOTE: If the total activity is greater than 150 nCi/gm, then the sample is sent off site. T Plant does not, as a routine practice, recommend on-site/off-site sampling.

Appendix 4:

Liquid Effluents Program Inputs

Liquid Effluents

**Westinghouse
Hanford Company**

WHC-SD-WM-TI-608, Rev. 2

**Internal
Memo**

From: 200 Area LEF Environmental Engineering
Phone: 372-2782 S6-74
Date: October 30, 1995
Subject: LIQUID EFFLUENT SERVICES SAMPLE PROJECTION UPDATE

86270-95-PMO-044

To: S. M. Joyce T6-04

cc: A. J. DiLiberto H6-10
D. L. Flyckt DLF S6-71
M. W. Peres S6-71
L. W. Roberts L6-04
R. W. Szelmezcza L6-05

Reference: Internal Memo, S. M. Joyce, WHC, to A. J. DiLiberto, WHC,
75720-95-001 "Sample Projection Update for November 1995",
dated October, 9, 1995

The three attached tables include the sample projections for the 200 Area Effluent Treatment Facility (ETF), the 200 Area Treated Effluent Disposal Facility (TEDF), and the 300 Area TEDF. This is the formal transmittal of the preliminary files sent CC:Mail on October 26, 1995.

The projections for the two TEDFs are based on operating experience. The projections for the ETF have more uncertainty since the plant is just starting the initial phases of treating wastewater.

If you have any further information please call me at 372-2872.

Thank you,

P. M. Olson
Principal Engineer

mro

Attachments (3)

SAMPLE PROJECTIONS WORKSHEET

Year 1996-2001

Program 200 Area Effluent Treatment Facility

Reference: Waste Analysis Plan for
ETF and LERF, Ground Water
Monitoring Plan, LEF Operations

# of Samples	RAD category	Matrix (1)	Protocol	ANALYSES								Comments
				Organic			In-Organic	Metals	RAD Chem.	Coliform, 800	Wet Chem	
				VOA/ Semi-VOA	Pest/ PCB	Other						
78 (PC1, PC2)	2	PC	RCRA	X		X						
26 (PC1, PC2)	2	PC	RCRA	X		X	X	X			X	
4 (PC3)	2	PC	RCRA						X			
78 (PC4)	2	PC	RCRA				X	X				
26 (PC5) 104 (C1)	2	PC ES	RCRA	X		X	X	X	X		X	
104 (PC6, PC7)	2	PC	RCRA					X	X			
78 (PC8) 26 (PC11)	2 or 3	PC	RCRA								X	
26 (PC10) 26 (PC12)	2 or 3	PC	RCRA				X				X	
12 (PC13, PC14, PC15)	2 or 3	PC	RCRA			X	X	X			X	
52 (U1, U2) 16 (EC1, EC2, EC3)	2	PC	RCRA				X	X			X	
104 (S1)	2 or 3	PC	RCRA	X		X	X	X	X		X	

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# of Samples	RAD category	Matrix (1)	Protocol	ANALYSES								Comments
				Organic			In-Organic	Metals	RAD Chem.	Coliform, BOD	Wet Chem	
				VOA/ Semi-VOA	Pest/ PCB	Other						
LERF												
36	2	WW	RCRA	X		X	X	X			X	
4	2	WW	RCRA						X			
ETF GROUND WATER MONITORING WELLS												
16	1	GW	RCRA	X		X	X	X	X		X	
48	1	GW	RCRA			X						
Assumptions: ETF starts operation October 30, 1995												
Notes:												
(1) PC = Process Control, water ES = Effluent Stream, water WW = Waste water GW = Ground water												

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SAMPLE PROJECTIONS WORKSHEET

Years 1996 to 2001 Program 200 Area TEF
Reference: 200 Area TEF Sample Schedule (WHC-SD-LEF-PLN-002, Rev 0)

# of Samples	RAD category	Matrix (1)	Protocol	ANALYSES										Comments
				Organic			In-Organic	Metals	RAD Chem.	Coliform, BOD	Met Chem			
				VOA/ Semi-VOA	Pest/ PCB	Other								
200 Area TEF Generators														
18	1 or 2	ES	RCRA				X				X			
44	1 or 2	ES	RCRA							X				
200 Area TEF														
16	1 or 2	ES	RCRA	X			X			X				
50	1 or 2	ES	RCRA	X					X	X			X	
46	1 or 2	ES	RCRA	X					X	X				
8	1 or 2	ES	RCRA	X			X			X				
200 Area TEF Ground Water														
16	1	GW	RCRA	X			X			X			X	
48	1	GW	RCRA				X							
Notes: ES = Effluent Stream (1) GW = Ground Water														

Year 1996-2001 Program 300 Area Treated Effluent Disposal Facility Reference: WHC-SD-L045H-SM-001, Rev. 1

SAMPLE PROJECTIONS WORKSHEET

WHC-SD-WM-TI-608, Rev. 2

# of Samples	RAD category	Matrix (1)	Protocol	ANALYSES							Comments	
				VOA/ Semi-VOA	Pest/ PCB	Other	In- Organic	Metals	RAD Chem.	Coliform, BOD		Wet Chem
26 (WCS)	1	PC	CMA	X		X	X	X		X		
26 (INF)	1	PC	CMA	X		X		X		X		
26 (GFE)	1	PC	CMA	X		X		X		X		
26 (GFE)	1	PC	CMA					X				
26 (IXE)	1	PC	CMA					X				X
312 (UVI and UVE)	1	PC	CMA	X (VOA)		X						
104 (UVI and UVE)	1	PC	CMA	X		X						
26 (FP)	1	FC	CMA					X		X		
12 (DNR)	1	ES	CMA							X		
24 Compliance	1	ES	CMA	X				X	X	X	X	
104 Compliance	1	ES	CMA									X
4 Compliance	1	ES	CMA									X
2 Compliance	1	ES	CMA	X				X	X	X	X	

Notes:
(1)
PC = Process Control
FC = Filter Cake
ES = Effluent Stream

Notes:

PC = Process Control
FC = Filter Cake
ES = Effluent Stream

Appendix 5:

Spent Nuclear Fuels Program Inputs

Spent Nuclear Fuels

From: Spent Nuclear Fuel Evaluations
Phone: 376-5109 L5-01
Date: November 21, 1995
Subject: REQUESTED SAMPLE AND ARCHIVE PROJECTIONS

To: [REDACTED] and C. B. McVey

cc:	G. Baston	R3-82	G. L. Miller	T6-06
	S. L. Brey	T6-12	K. L. Pearce	R3-48
	J. C. Fulton	R3-11	J. Shuen	S7-41
	E. W. Gerber	R3-86	K. L. Silvers	P7-27
	G. B. Griffin	T6-16	D. J. Trimble	L5-01
	A. G. King	T6-03	T. B. Veneziano	R3-11
	L. A. Lawrence	L5-01	RBB File/LB	L5-01
	B. J. Makenas	L5-01	RPO File/LB	R3-85

- References:
- (1) Internal Memo, S. M. Joyce to D. B. Cartmell et al., "Sample Projection Update for November 1995," dated October 9, 1995.
 - (2) Letter, "Letter of Instruction (Part III): Analysis of K Basin Floor Sludge Samples," 9554796, dated September 21, 1995.
 - (3) Letter, S. L. Brey (WHC) to T. J. Kelley (ICFKH) et al., "Request for Sample Archiving Requirements," dated October 17, 1995.

Per the request of Reference 1, Attachment 1 lists the projected sample analysis needs for Spent Nuclear Fuel Project/K Basin Characterization which are to be performed by Analytical Services. The analyses required for the sludge samples indicated are similar to those for the on-going K East Basin floor and Weasel Pit sludge samples. A more detailed summary of these analyses is provided in Attachment 2 of this memo, and in Reference 2. The indicated analyses of liquid samples from closed K West Basin canisters are similar to those taken during the first half of FY 1995 for the first fuel characterization campaign.

The basis for the sludge sample estimates is the current Multi-Year Program Plan (MYPP). The basis for the liquid samples from the canisters is a current technical study; the MYPP reflects a lower number of these samples (e.g., 60 total). The Data Quality Objectives (DQO) for this characterization will resolve the final number of samples to be taken. Also, while the MYPP, and Attachment 1, only call for sampling in FY 1996 and FY 1997 it is anticipated that limited additional sludge sample analyses may also be required during the FY 1998 through FY 2000 period to answer additional design and disposal questions.

S. M. Joyce
Page 2
November 21, 1995

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Reference 3 requested a projection of archive needs for samples going to 222-S from the Spent Nuclear Fuel/K Basin Characterization activities. Presently, the characterization program has no archiving plans for samples beyond the normal retention for QA, reruns, and until final reports are completed (i.e., 6 to 9 months from entry in laboratory). The samples involved are noted in Attachment 1.

Please contact me if you have questions.

RB Baker

R. B. Baker
Spent Nuclear Fuel Evaluations

jmn

Attachments 2

CONCURRENCE:

R P O mberg

R. P. Omberg, Manager
Spent Nuclear Fuel Evaluations

Date: Nov 22, 1995

SAMPLE PROJECTIONS WORKSHEET

Year FY 1996 Program SNF/K Basin Sludge Characterization Reference MYPP and Technical Estimate

No. of Samples	RAD Category	Matrix	Analyses ¹					Comments
			Organic	In-Organic	Metals	RAD Chem.	Wet Chem.	
			VOA/Semi-VOA					
10	6	Sludge	X	X	X	X		K Basin Fuel Canister Sludge
20 ²	6	Sludge	X	X	X	X		K Basin Floor Pit Sludge
60	5	Liquid				X	X	Water samples from closed canisters in K West

¹See Attachment 2 for more detail.

²Samples currently at analytical laboratories.

WMC-SD-MM-TI-608, Rev. 2

SAMPLE PROJECTIONS WORKSHEET

Year FY 1997 Program SNF/K Basin Sludge Characterization Reference MYP and Technical Estimate

No. of Samples	RAD Category	Matrix	Analyses ¹					Comments
			Organic	VOA/Semi-VOA	In-Organic	Metals	RAD Chem.	
			Wet Chem.					
10	6	Sludge	X	X	X	X	X	K Basin Fuel Canister Sludge
20	6	Sludge	X	X	X	X	X	K Basin Floor Pit Sludge
50	5	Liquid					X	Water samples from closed canisters in K West

¹See Attachment 2 for more detail.

WHC-SD-WM-TI-608; Rev. 2

105-K East Main Basin and Weasel Pit Sludge Sample Analyses
to be Performed by the Analytical Laboratory.

Requested Analysis	Analysis Technique	Constituents to be Reported
Am-isotopic Pu-isotopic	Separation and AEA	^{241}Am , ^{238}Pu , $^{239/240}\text{Pu}$
Sr-90	Separation and beta counting	^{90}Sr
Np-237	Extraction and alpha counting	^{237}Np
Total Gamma	GEA	^{241}Am , ^{137}Cs , ^{134}Cs , ^{60}Co , europium and other gamma emitters in library
Gross Alpha	Gas proportional counting	Detectable alpha emitters
Gross Beta	Gas proportional counting	Detectable beta emitters
U Total	Laser fluorescence	Total uranium
U-Isotopics	TIMS	^{235}U , ^{238}U , ^{233}U
Metals	ICP	Al, Cd, Sm, B, Fe, Ba, Cr, Pb, Ag, Be, Tl, Zn, Cu, Mn, Mg, Ca, Na, Si, Zr
IC Analyses	IC	NO_2^- , NO_3^- , PO_4^{3-} , SO_4^{2-} , F^- , Cl^-
Ammonia	ISE	$\text{NH}_3/\text{NH}_4^+$
pH	pH	pH
Organics	VOA	Toluene, methyl isobutyl ketone, vinyl chloride, chlorinated paraffin, methyl ethyl ketone, and tentatively identified compounds (TICs) found in the analysis
	SVOA	Any TICs found in the analysis
Endothermic/Exothermic Reactions	DSC/TGA	DSC/TGA
Settled Density	Gravimetric/sample preparation procedure	Settled density Volume
Cyanide	Distillation and spectrophotometry	Total cyanide

WHC-SD-WM-TI-608, Rev. 2

105-K East Main Basin and Weasel Pit Sludge Sample Analyses
to be Performed by the Analytical Laboratory. (Continued)

Requested Analysis	Analysis Technique	Constituents to be Reported
Residual Analysis	XRD	Qualitative analysis of any undigestible residue
Pyrophoricity	XRD	Qualitative analysis of the sludge prior to heating or digestion Unreacted metallic uranium and Zr Unoxidized uranium hydride Uranium oxide, hydrates of Al_2O_3 , $UO_2 + FeO_x$
Particle Size Distribution	Particle size analyzer	Size, distribution
Particle Shape	Optical microscopy	Shape
Particle Density	Gas pycnometer/calculation	Density dry/density wet
Viscosity	Viscometer	Viscosity
TIC/TOC/TC	Persulfate oxidation and coulometry	TIC (CO_3^{2-}), TOC
Zeta Potential		
Caustic Demand	Potentiometric titration	Amount of hydroxide (OH^-) needed to reach a specified pH

Appendix 6:

Site Monitoring Program Inputs

Site Monitoring

SAMPLE PROJECTIONS WORKSHEET												
Year: FY96												
Program: Hanford Site Environmental Monitoring												
# of Samples	RAD	Category	Matrix	Protocol	VOA/SVOA	PCB/Pest.	Other	Inorganics	Metals	RAD	Coliform, BOD	Wet Chem
3163			1	Water	DOE Order/RCRA	469	3	103	744	1273		
60			1	Soil	DOE Order/RCRA				60			
1060			2	Water	DOE Order/RCRA	235	3	51	146	372	637	Wet Chem is Anions by IC
169			2	Soil	DOE Order/RCRA			30	30	611		
1785			2	Air	DOE Order/RCRA				3575			
258			2	Biota	DOE Order/RCRA				846			
Year: FY97												
Program: Hanford Site Environmental Monitoring												
# of Samples	RAD	Category	Matrix	Protocol	VOA/SVOA	PCB/Pest.	Other	Inorganics	Metals	RAD	Coliform, BOD	Wet Chem
2878			1	Water	DOE Order/RCRA	427	3	94	266	677	1158	
55			1	Soil	DOE Order/RCRA				55			
965			2	Water	DOE Order/RCRA	214	3	46	133	339	580	Wet Chem is Anions by IC
154			2	Soil	DOE Order/RCRA				27	556		
1624			2	Air	DOE Order/RCRA				3253			
235			2	Biota	DOE Order/RCRA				770			
Year: FY98 - FY2001												
Program: Hanford Site Environmental Monitoring												
# of Samples	RAD	Category	Matrix	Protocol	VOA/SVOA	PCB/Pest.	Other	Inorganics	Metals	RAD	Coliform, BOD	Wet Chem
2734			1	Water	DOE Order/RCRA	405	3	89	252	643	1101	
52			1	Soil	DOE Order/RCRA				52			
916			2	Water	DOE Order/RCRA	203	3	44	126	322	551	Wet Chem is Anions by IC
146			2	Soil	DOE Order/RCRA				26	528		
1543			2	Air	DOE Order/RCRA				3091			
223			2	Biota	DOE Order/RCRA				731			
Year: FY99												
Program: Hanford Site Environmental Monitoring												
# of Samples	RAD	Category	Matrix	Protocol	VOA/SVOA	PCB/Pest.	Other	Inorganics	Metals	RAD	Coliform, BOD	Wet Chem
26			1	Water	DOE Order/RCRA	405	3	89	252	643	1101	
52			1	Soil	DOE Order/RCRA				52			
916			2	Water	DOE Order/RCRA	203	3	44	126	322	551	Wet Chem is Anions by IC
146			2	Soil	DOE Order/RCRA				26	528		
1543			2	Air	DOE Order/RCRA				3091			
223			2	Biota	DOE Order/RCRA				731			

DON'T SAY IT --- *Write It!*

DATE: October 17, 1995

TO: S. M. Joyce

FROM: D. G. Horton

Telephone: 6-6868

CC: M. York
T. Washington

SUBJECT:

Information Requested by Internal Memo 75720-95-011

Attached are the number of analyses that the RCRA and Operational Monitoring programs are having done this fiscal year. The matrix is groundwater; the protocol is SW-846; and the radiation level is low. I expect a decrease in the number of analyses by approximately 10% the next two or three years after which the program should be stable. If you have any questions please call me at 6-6868.

8/04/95

FY96 CONSTITUENTS

Page 1

Group	Filtered	No. of Methods
-----	-----	-----
ALKALINITY		581
ALPHA		726
AMMONIUM		48
ANIONS		779
ARSENIC	F	60
BETA		729
COD		38
COLIFORM		56
GAMMA SCAN-LOW LEVEL		48
ICP METALS	F	642
ICP METALS	U	84
IODINE-129		79
LEAD	F	188
MERCURY	F	162
PCB		26
PH-LAB		52
PHENOLS		218
SEMI-VOA		60
STRONTIUM-90		7
TC		56
TDS		294
TECHNETIUM-99		211
TOC		2120 X
TOX		2028
TRITIUM		614
URANIUM		199
VOA (GC)		214
VOA (GC/MS)		10

W/out C018H, W049H

1996: 900 samples per taken w/ Dumas Norton 11/8/95
 10% decrease per ^{2.3} years after

1997: 810

1998: 729

1999: 729

2000: 729

2001: 729

Appendix 7:

Industrial Hygiene Inputs

Industrial Hygiene

Input - Sample Projections - FY96

Drinking Water:

As predicted, the amount of drinking water work during FY96 will be minimal. I spoke to Lynn Kelly and Doug Rohl, the ICF-KH purveyor contacts for most of the Hanford drinking water systems (WHC and Bechtel each have one). Based on regulatory sampling frequencies and requirements they will be needing approximately the following:

- 6 samples, this quarter only, for SOC's (pesticides/herbicides)
- ~3 samples/quarter for VOC's (only 1 location needs this)
- 5 samples total for inorganics (metals, anions, etc)
- ~50 samples total for lead/copper
- ~300 samples maximum for coliform bacteria

At present ICF-KH has been using the following laboratories:

- Benton/Franklin Health Department - coliform bacteria
- Inland Empire (Spokane, I believe) - SOC's & VOC's
- City of Everett - lead/copper & inorganics

ICF-KH contracts are placed through WHC procurement, but not through the Hanford Analytical Services organization. During FY95, WHC and Bechtel also used these contracts and had ICF-KH collect their samples. Their plans for FY96 are unknown, but their analytical needs should not significantly change the numbers shown above.

Industrial Hygiene:

I have checked with the IH organizations that provide most of our lead in paint, asbestos bulk and fiber count samples, plus a sampling of facility IH staff. There are no guarantees, so this is pretty much out of the crystal ball, but I'm guessing we'll get about 4000 IH samples in FY96, broken down as follows:

Asbestos Fiber Count	2600
Bulk Asbestos	450
Lead in Paint	150
Air/other Metals	250 (some for multiple metals)
Particulate	100
TDU tubes	100 (multiple analytes)
Other sorbent tubes	100
Ammonia	70
PCBs (mostly swipes)	50

Free silica	50
Misc other	<u>80</u>
Total	4000

In the four months since we moved to WSCF we have received ~1250 samples. Some of the responders indicated they plan to sample more, some less. Overall I think it will balance out.

So far I have not made contact with anyone from Bechtel. If I find out anything about their IH sample analyses, I'll pass it along.

Appendix 8:

Process Support Inputs

Process Support

WHC-SD-WM-TI-608, Rev. 2

B PLANT/WESF COMPLEX
TRANSITION PROJECTS
WESTINGHOUSE HANFORD COMPANY

11/3/95

To: *Steve Joyce*

TC-04

To: *Al Grashen*

Phone No: _____

FAX Number: _____

Confirmation No: _____

From: *Dwayne Spear*

Phone No: _____

Comments: _____

Sample analyses projections - B Plant

Pages Including COVER SHEET: 10

TRANSITION PROJECTS * B PLANT/WESF * MO410/200E * FAX # 372-0232

B Plant Organics Evan Harts

DATA QUALITY OBJECTIVE PROCESS FOR THE AQUEOUS AND ORGANIC SAMPLING ANALYSIS

Step 1: State the problem
Background information and scoping of the issues.

Final disposal of the aqueous and organic waste. Prior to the transfer of the aqueous phase to Tank Farms, removal of the organic waste from the B Plant canyon, and final organic disposal, a characterization study is required.

Step 2: Identify the decision
The decision the study will resolve and the actions that may result.

- A. Aqueous waste will be transferred to Tank Farms.
- B. Disposal of the organics will be in two phases:
 - 1. Remove organic waste from the canyon.
 - 2. Possible disposal of the waste offsite.

Step 3: Identify the inputs to the decision
Information and measurements that need to be obtained to resolve the decision statement.

- A. Final disposal of the aqueous waste will be to the Double Shell Tank Farms. The aqueous list of analytes was based on requirements of the Double Shell Tank (DST) Waste Analysis Plan (WAP), WHC-SD-WM-EV-053, Rev 2. Meetings were held with representatives from Tank Farms to gain concurrence on the list of analytes.

Table 1: AQUEOUS PHASE
QUALITY ASSURANCE OBJECTIVES FOR WASTE CHARACTERIZATION

Parameter	Minimum Quantitation Levels	Method Type	2226 Lab Procedure	Action Level
Aluminum	5 ug/ml	ICP	LA-505-151 LA-505-181	Np
Americium 241	0.005 uCi/ml	AEA	LA-953-103	> 0.01 ug/ml
Cadmium	0.1 ug/ml	ICP	LA-505-151 LA-505-181	1 ug/ml
Carbonate	--	TIC	LA-622-102	Np
Cesium-137	1 uCi/ml	GEA	LA-548-121	Np
Chloride	10 ug/ml	IC	LA-833-105	Np
Cyanide	--	Micro Distillation	LA-685-102	Np
Energetics	0 J/gm	Net Exo. Energy	LA-574-113	> 0 kcal/gm

Table 1: AQUEOUS PHASE QUALITY ASSURANCE OBJECTIVES FOR WASTE CHARACTERIZATION				
Parameter	Minimum Quantitation Levels a	Method Type	222S Lab Procedure	Action Level
Fluoride	1 ug/ml	IC	LA-533-105	Np
Hydroxide	250 ug/ml	Titration	LA-211-102	≥ 8M or ≤ 1M
Iron	--	ICP	LA-505-151 LA-505-161	Np
Moisture, %	--	TGA	LA-560-112 LA-514-114	Np
Nitrate	10 ug/ml	IC	LA-533-105	> .11 M < 6.5 M
Nitrite	10 ug/ml	IC	LA-533-105	< 1.0 M
pH	--	Glass Electrode	LA-212-102	Np
Phosphate	10 ug/ml	IC	LA-533-105	Np
Plutonium 238/240	0.005 uCi/ml	AEA	LA-943-127	> 0.84 ug/ml
Sep. Organic	--	Visual Observation	LA-519-151	presence
Sodium	0.020 ug/ml	ICP	LA-505-151 LA-505-161	Np
Solid, %	--	--	LA-564-101	Np
Specific gravity	--	Calibrated Pipet	LA-519-174 LA-510-112	1.5
Strontium-90	0.001 uCi/ml	Separation and Beta Prop. Count	LA-220-101	Np
Sulphate	10 ug/ml	IC	LA-533-105	Np
TOC	100 ug/ml	Furnace Oxidation Coulometric Titration	LA-344-105	Np
Total Beta	0.01 uCi/ml	--	LA-505-101	Np
Total Alpha	0.001 uCi/ml	--	LA-505-101	Np
U Total	0.1 ug/ml	--	LA-925-009	Np
Viscosity	--	--	LA-519-321	
a = MDL is the lowest level (concentration, change in energy) that can be detected. Np = Action levels not provided. -- = Information currently not provided.				

- B. Transfer and final disposal of the organic requires a characterization of the waste. The list of analytes was based on process knowledge, Department of Transportation requirements, and a typical incinerator requirements.

Process knowledge was based on the drawing "Solvent Extraction Flowsheet for Strontium Recovery, (SK-2-22534)" taken from ARH-CD-691, Strontium Recovery from Purex Acidified Sludge, Section 2, dated May, 1970. Due to the potential for final disposal to an offsite incineration company, Diversified Scientific Services, Inc. (DSSI) was contacted to determine waste acceptance criteria. DSSI forwarded a waste profile sheet (Appendix B). DSSI was contacted by telephone to determine the preferred procedures for analyses. Meetings were held with representatives from 222S Laboratory to ensure that the lab had the capabilities to perform the requested analyses per DSSI procedures when practical.

Table 2: ORGANIC PHASE QUALITY ASSURANCE OBJECTIVES FOR WASTE CHARACTERIZATION						
Parameter	SW-846 Reference Method	Minimum Quantitation Levels a	Method Type	222S Lab Procedure	Vol of Sample	Action Level
Ash %	none	.01 %		ASTM492-80	5.0 ml	.1 %
Barium	6010A	50 ug/ml	ICP	LA-505-151 LA-505-161	10.0 ml	100 ug/ml
Cadmium	6010A	0.1 ug/ml	ICP	LA-505-151 LA-505-161	SEE h	1 ug/ml
Cesium-137	none	1 uCi/ml	GEA	LA-548-121	22.0 ml	Np
Chromium	6010A	0.5 ug/ml	ICP	LA-505-151 LA-505-161	SEE h	5 ug/ml
D2EMPA	3580A	1 %	GC	LA-523-133	7 ml	Np
Energetics	none	0 J/g	DSC (in air)	LA-514-113	<1.0 ml	> 0
Lead	6010A	0.5 ug/ml	ICP	LA-505-151 LA-505-161	SEE h	5 ug/ml
Moisture %	none	5 %	FTIR	Test Plan	1 ml	Np
NPH	3580A	5 %	GC	LA-523-133	7 ml	Np
Particle Size	none	..	Particle Size Analyzer or Microscopy or 1/32 inch screen	LT-519-101 TBD	5.0 ml	1/32"

Table 2: ORGANIC PHASE QUALITY ASSURANCE OBJECTIVES FOR WASTE CHARACTERIZATION						
Parameter	SW-846 Reference Method	Minimum Quantitation Levels a	Method Type	222B Lab Procedure	Vol of Sample	Action Level
Plutonium 238/240	none	0.005 uCi/ml	AEA	LA-943-127	10.0 ml	Np
Specific Gravity	none	--	Mass/Volume	LA-510-112	0.5 ml	Np
Strontium 90	none	0.001 uCi/ml	--	LA-220-101	5.0 ml	Np
TBP	3580A	1%	G.C.	LA-523-133	7 ml	Np
Water Solub.	none	--	Miscibility Test	ASTMD5058- 90/C	5.0 ml	Np
U Total	none	0.1 ug/ml		LA-925-009	0.5 ml	Np
a = MQL is the lowest level (concentration, change in energy) that can be detected b = or PNL procedure Np = Action levels not provided -- = information currently not provided h = Represents a group of parameters whose total volume is 10 ml. (The 10 ml is assigned to Barium) TBD = To be determined						

- C. All activities associated with sampling activities will be done per approved procedures.

Step 4: Define the study boundaries
The specific time periods and spatial area related to the decision.

- A. Sampling Analysis Plan is scheduled to be complete in mid August of 1995.
- B. Samples are tentatively scheduled to be pulled in early to mid September of 1995.
- C. Transfer of organic from B Plant canyon to an outside storage tank is scheduled to be complete by August of 1996.
- D. Transfer of aqueous waste to Tank Farms is undetermined.
- E. Final disposal of organic waste is undetermined.

Step 5: Develop a decision rule
Relate all outputs into "if..then" statement for choosing between alternative decisions.

If results are not within the limits to complete the decision statement, then process development work may be required to reduce hazards.

TMC
10/28/76

all category 2
(^{238}Pu , ^{239}Pu ; ^{240}Pu)

ROUTINE SAMPLES/ANALYTES FOR FY96

AIR EFFLUENT	ROUTINE SAMPLES/ANALYTES	COMPOSITE SAMPLE/ANALYTES	NON-ROUTINE/ANALYTES
291-B-1	52/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
296-B-5	26/Total Alpha, Total Beta	--	--
296-B-10	52/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
296-B-13	26/Total Alpha, Total Beta	--	--
LIQUID EFFLUENT	ROUTINE SAMPLES/ANALYTES	--	--
207-B	--	Weekly/Total Beta, GEA, pH , Sr-90	12/Total Beta, GEA
TK900	--	--	6/Total Beta, GEA
221BA	--	--	3/Total Beta, GEA
221BG	--	--	3/Total Beta, GEA
211BA	--	2 Month Indicator (see 6 attached) 6 Month Expanded (see 2 attached)	2/Total Beta, GEA, pH
216-B-59	--	--	6/Total Beta, GEA, pH

Note: Unless otherwise stated all analyses are for B Plant.

156

68

40

=

264

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ROUTINE SAMPLES/ANALYTES FOR FY97

AIR EFFLUENT	ROUTINE SAMPLES/ANALYTES	COMPOSITE SAMPLE/ANALYTES	NON-ROUTINE
291-B-1	26/Total Alpha, Total Beta	⁹⁰ Sr, ¹³⁷ Cs, ^{239/240} Pu	4/Total Alpha, Total Beta
296-B-5	4/Total Alpha, Total Beta	--	--
296-B-10	26/Total Alpha, Total Beta	⁹⁰ Sr, ¹³⁷ Cs, ^{239/240} Pu	4/Total Alpha, Total Beta
296-B-13	4/Total Alpha, Total Beta	-----	
LIQUID EFFLUENT	ROUTINE SAMPLES/ANALYTES	--	--
207-B	--	Weekly/Total Beta, GEA, pH, Sr-90	12/Total Beta, GEA
TK900	--	--	6/Total Beta, GEA
221BG	--	--	3/Total Beta, GEA
211BA	--	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH
225BG (WESF)	--	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH

WHC-SD-WM-TI-608, Rev. 2

Note: Unless otherwise stated all analyses are for B Plant.

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ROUTINE SAMPLES/ANALYTES FOR FY98

AIR EFFLUENT	ROUTINE SAMPLES/ANALYTES	COMPOSITE SAMPLE/ANALYTES	NON-ROUTINE
291-B-1	26/Total Alpha, Total Beta	⁹⁰ Sr, ¹³⁷ Cs, ^{239/240} Pu	4/Total Alpha, Total Beta
296-B-10 (WESF)	26/Total Alpha, Total Beta	⁹⁰ Sr, ¹³⁷ Cs, ^{239/240} Pu	4/Total Alpha, Total Beta
LIQUID EFFLUENT	ROUTINE SAMPLES/ANALYTES	--	--
TK900	--	--	6/Total Beta, GEA
2118A	--	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH
225BG (WESF)	--	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH

Note: Unless otherwise stated all analyses are for B Plant.

52 24 18 = 94

ROUTINE SAMPLES/ANALYTES FOR FY99

AIR EFFLUENT	ROUTINE SAMPLES/ANALYTES	COMPOSITE SAMPLE/ANALYTES	NON-ROUTINE
291-B-1	26/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
296-B-10 (WESF)	26/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
LIQUID EFFLUENT	ROUTINE SAMPLES/ANALYTES	--	--
2258G (WESF)	--	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH

Note: Unless otherwise stated all analyses are for B Plant.

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16 2 8/2

ROUTINE SAMPLES/ANALYTES FOR FT00

AIR EFFLUENT	ROUTINE SAMPLES/ANALYTES	COMPOSITE SAMPLE/ANALYTES	NON-ROUTINE
291-8-1	26/Total Alpha, Total Beta	4 ^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
296-B-10 (MESF)	26/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
LIQUID EFFLUENT	ROUTINE SAMPLES/ANALYTES	--	--
2258G (MESF)	--	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH

Note: Unless otherwise stated all analyses are for B Plant.

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ROUTINE SAMPLES/ANALYTES FOR FY01

AIR EFFLUENT	ROUTINE SAMPLES/ANALYTES	COMPOSITE SAMPLE/ANALYTES	NON-ROUTINE
291-B-1	26/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
296-B-10 (WESF)	26/Total Alpha, Total Beta	^{90}Sr , ^{137}Cs , $^{239/240}\text{Pu}$	4/Total Alpha, Total Beta
LIQUID EFFLUENT	ROUTINE SAMPLES/ANALYTES	---	---
2258G (WESF)	---	2 Month Indicator (see attached) 6 Month Expanded (see attached)	2/Total Beta, GEA, pH

Note: Unless otherwise stated all analyses are for B Plant.

FIELD SAMPLING REQUIREMENTS TABLE

200 AREA TEDP GENERATOR INDICATOR SAMPLES				
COMPOSITE				
ANALYTICAL METHOD	METHOD #	VOLUME/ CONTAINER*	PRESERVATIVE	HOLD TIME ^b
Iron and Manganese Arsenic Cadmium Chromium Lead Mercury	6010A 7060A 7131A 7191 7421 245.1	1 x 500ml G	1:1 HNO ₃ (pH < 2)	180 d
Rad Screen - composite	N/A	1 x 20ml G	No Chemicals 4±2° C	30 d
200 AREA TEDP GENERATOR EXPANDED SAMPLES				
COMPOSITE				
Chloride, Nitrate, and Sulfate Total Dissolved Solids	300.0 160.1	1 x 500ml G	No Chemicals 4±2° C	7 d
Iron and Manganese Arsenic Cadmium Chromium Lead Mercury	6010A 7060A 7131A 7191 7421 245.1	1 x 500ml G	1:1 HNO ₃ (pH < 2)	180 d
Bis(2-ethylhexylphthalate) and Phenols	B270B	4 1-L sG	No Chemicals 4±2° C	7 d
Rad Screen - composite	N/A	1 x 20ml G	No Chemicals 4±2° C	30 d
GRAB				
Cyanide	335.3	1 x 250-ml P	6M NaOH (pH > 12)	14 d
WTPH-G	B015(modified)	3 x 40-ml sGs	1:1 HCl(pH < 2) 4±2° C	14 d
WTPH-G Trip Blank	B015(modified)	1 x 40-ml sGs	1:1 HCl(pH < 2) 4±2° C	14 d
Oil and Grease	9070	2 x 1-L sG	1:1 HCl(pH < 2) 4±2° C	28 d
Carbon Tetrachloride, Chloroform, Methylene chloride, 1,1,1-Trichloroethane, Trichloroethane (Total)	B260A	3 x 40-ml sGs	1:1 HCl (pH < 2) 4±2° C	14 d
VOA Trip Blank	B260A	1 x 40-ml sGs	1:1 HCl (pH < 2) 4±2° C	14 d
Gross alpha Gross beta	GADGPC GBDPC	1 x 2-L sG	1:1 HNO ₃ (pH < 2)	180 d
Total radium Radium-226	TOTRAABAGEA RA226AEA	2 x 2-L sG	1:1 HNO ₃ (pH < 2)	180 d
Rad Screen - grab	N/A	1 x 20ml G	No Chemicals 4±2° C	30 d
Notes:				
*Container Types				
P = Plastic (Polyethylene)				
G = Glass				
sG = Amber Glass				
sGs = Amber Glass with septum cap				
^b Maximum time between sampling and analysis.				

Author: Alan A Grasher at WHC139

Date: 11/2/95 9:46 AM

Priority: Normal

TO: Steven M Joyce at WHC121

Subject: Sample Projection update for November 1995

----- Message Contents -----

The two attached files contain the requested data for PUREX. There will be no samples from PUREX after 1997.

Dan Mildon sent the info for PFP.

Duane Speer sent me a hard copy of the info for B Plant. It is in the mail to you

This completes Transition Programs input for this request.

PUREX

SAMPLE PROJECTIONS WORKSHEET

Year FY 1996

Program PUREX

Reference: Carmen Villalobos

# of Samples	RAD category	Matrix	Protocol	ANALYSES								Comments
				Organic			In-Organic	Metals	RAD Chem.	Coliform, BOD	Wet Chem	
				VOA/ Semi-VOA	Pest/ PCB	Other						
16	5	H2O	RCRA	X			X	X	X		X	\$ 96,000
24	1	H2O	OPS						X		X	\$ 18,000
20	X ALUMINUM 2	H2O	OPS						X		X	\$ 60,000 other analysis as needed
110	*4-6 4/25 4/26	H2O	OPS				X	X	X		X	\$400,000
15	* ALUMINUM 2	** ALUMINUM	OPS						X		X	other analysis as needed
33	2	air filter							X			\$16,000

* = As part of PUREX deactivation activities, solutions or material stored in various tanks, drums, or storage boxes are flushed and/or sampled. The radioactivity will vary depending on the constituents in these units.

** = These samples are collected to characterize waste such as dirt, oil, water, rags, etc. for proper management.

OPS= Samples collected to characterize waste for proper management.

RCRA Protocol Samples (10) at \$6,000/sample
Quarterly Protocol Samples (6) at \$6,000/sample
(ICP, TOC, pH, VOA, Ar, Se, Hg) IC & DSC for quarterly only

Process Samples (Cr,Cd,pH) (20) at \$600/sample
(GEA,TA,TB) (10) at \$300/sample

Pre & Post Neuts. 2 samples/wk; 8/month; 8 months = 64 at \$5,000/sample
PRE: GEA, APPR, C/R, DENSITY, NO3, pH, Pu, U
POST: APPR, NO2, OH, pH

Tank 31 3/month; 8 months; = 24 at \$750
(TA,TB,TOC,pH)

Misc. Process Samples: 20 at \$3000/sample
(pH, TA, TB, GEA, H+, NO3, Pu, U, SpG, ICP)

SAMPLE PROJECTIONS WORKSHEET

Year 1997

Program PUREX

Reference: Carmen Villalobos

WHC-SD-WM-TI-608, Rev. 2

[illegible]

* = As part of PUREX deactivation activities, solutions or material stored in various tanks, drums, or storage boxes are flushed and/or sampled. The radioactivity will vary depending on the constituents in these units.

** = These samples are collected to characterize waste such as dirt, oil, water, rags, etc. for proper management.

QPS = Samples collected to characterize waste for proper management.

= None expected. However, samples collected will depend upon need.

Author: Dan T Mildon at ~WHC96
Date: 11/2/95 8:45 AM
Priority: Normal
Receipt Requested
TO: Steven M Joyce at ~WHC121
CC: Cary M Seidel at ~WHC121
CC: Alan A Grasher at ~WHC139
CC: E W (Liz) Curfman at ~WHC27
CC: Ernest G (Gary) Backlund at ~WHC120
CC: Donald J (Don) McBride at ~WHC28
CC: Robert E (Rob) Gregory at ~WHC30
Subject: Sample Projections for Analytical Services

----- Message Contents -----

Steve, as we discussed last Friday we have added the sample data from our in-house Analytical Laboratory (file labsampl.anl). In addition, the table for WSCF/222-S sample analysis data (file labsampl.bop) has been updated to reflect a better understanding of the data you needed. If you have any questions call me at 373-3867.

Dan

Need Copy from Gary

PFF

Program 1K6 Plutonium Finishing Plant

SAMPLE ANALYSIS PERFORMED AT EITHER WSCF OR 222-S

Year: 1996-2002

# of samples/ year	RAD Category	Matrix	Protocol	ANALYSES										Comments
				VOA/ semi- PCB	VOA/ PCB	Other	In- organic	Metals	Rad. Chem.	Coliform, BOD	Wet Chem			
				Organic										
115	1 or 2 58-1 59-2	H2O	Process			TOC 115		115	115			LTWTF, 243- Z		
78	1	H2O	Process	6	6	6		20	52			225-WC		
131	2	Filter Media (Aq)	CAA, RCRA 40CFR61						131			PFP Slacks		
63	1-4-16 7-17	Oil (u)	RCRA		10 PCB			45	63			PFP SWO		
41	1	H2O	RCRA					1 NO3	18	41		22 pH	PFP SWO	
2	1	Soil	Process						2			PFP SWO		
16	1	H2O	Process						16			PFP SWO		
22	1	Solids	RCRA					14	20		3 pH 3 free liquid	PFP SWO		
6	7	Solids	RCRA					6 NO3	6	7		7 pH	PFP SWO	
20	1	Liquid soln.	Process					4	20		1 pH	PFP SWO		

6	1	Liquid soln.	RCRA	5			1 NO3	1	6		2 pH	PFP SWO
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Budget:: the current budget support for Analytical Services is loaded into FDS and is retrievable by locating the applicable organization code under the 1K6 end function.

Above sample and analyses numbers are annualized. Numbers for SWO were obtained from the SWO sample log for a 12 month period and 6 were added to R&D 7 Solids to compensate for 94-1 anticipated effects.

PFP Analytical Laboratories (Org. 15400) Projected Samples 1996-2001

# of samples	RAD Category	Matrix	Protocol	ANALYSES							Comments	
				Organic			In-organic (*)	Metals	Rad Chem.	Coliform, BOD		Wet Chem
				VOA/semi-VOA	Pest/PCB	Other						
283	7	HNO3 (H2O)	Process				X	X	X		X	PPSL
26	7	Solids	Process				X					PPSL
118	7	Solids	Process				X					(**) 94-1 LOIs
91	7	Sludge	Process			X Org. X						(**) Sludge Stabilization.
36	1	H2O, 18 oil 18	Process			Visc. X	X				X	ZC Samples Maintenance
27	7	PUO2	Process						X		X	IAEA
123	7	PUO2	Process								X	IAEA
30	7	PUO2	Process				X				X	IAEA
18,200	2	Filter Media	Process				X				X	CAMS & Room Air
50	Assume 7	Solids	Process				XRF					(**) 94-1, etc.

* IN-ORGANIC: Testing consists of LOI/TGA, Amperometric Assay, and Mass Spectrometry.

** ESTIMATED SAMPLE VOLUME: The above data is for the year 1995. Due to support for DNFSB 94-1 stabilization efforts the indicated numbers are expected to increase somewhat during 1996, increase significantly in 1997, stay level through 2001, and then taper off during 2002 as the DNFSB 94-1 May 2002 Milestone completion date is achieved.

BUDGETARY DATA:

► FY 1996 budget for PFP Analytical Laboratories is \$1,989,480.

This includes maintaining laboratory operating procedures, processing and documentation of lab samples (for both general plant support and DNFSB 94-1 stabilization support), support to CENRTC laboratory upgrades, regulatory support (S/RIDs), support to Onsite and Offsite shipping/receiving, routine

inventory confirmation support, response to container anomalies, support to regulatory negotiations, support to DOE-HQ and IAEA requests, and training of laboratory personnel.

- Not included in the above sample numbers but included in the foregoing budget number is Non-destructive analysis (NDA) testing. NDA testing accounts for approximately 10% of the total budget.

SAMPLE PROJECTIONS WORKSHEET

Annual numbers Fee
Year 1996-2001

Program ROM (Effluent Monitoring)
New Field Monitoring

Reference: HERE SPECIFIC INFORMATION.
SEE ATTACHED TABLES FOR
CONTACT Brian Gifford 376-2465 SA

12/1/96

Process Control

121

# of Samples	RAD Category	Matrix	Protocol	ANALYSES					Comments
				In-Organic	Metals	Rad. Chem.	Coliform	Met. Chem	
904	a	Air Filter	NSMAP			X			DOO AERES EFFLUENT AIR
60	a	H ₂ O				X			DOO AERES LIQUID EFFLUENT
1118	a	Air Filter				X			ENVIRONMENTAL AIR SAMPLES
36	a	H ₂ O				X			SURFACE WATER SAMPLES
162	a	H ₂ O							SURFACE WATER SAMPLES
12	a	H ₂ O							SURFACE WATER SAMPLES
3	a	ADVANTAGE SCREENING				X			ADVANTAGE SCREENING SAMPLES
50	a-7	Soil				X			ENVIRONMENTAL SAMPLES
50	a-7	VEG				X			ENVIRONMENTAL SAMPLES
50	a-7	Animal				X			ENVIRONMENTAL SAMPLES

Near-Field Monitoring* CY-1996 Sample Analyses per Year (Performed by WSCF)

Sample Type	100	200	300	400	Sample Totals	100	200	300	400	Sample Totals	100	200	300	400	Sample Totals	100	200	300	400	Sample Totals	100	200	300	400	Sample Totals
Air																									
Sample Totals	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100
Water																									
Sample Totals	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100
Aquatic Vegetation																									
Sample Totals	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100
Aquatic Sediment																									
Sample Totals	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100
Non-Flaming Samples																									
Sample Totals	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100
Ball																									
Vegetation																									
Animal																									
Sample Totals	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100	100	200	300	400	1100

* All Near-Field Monitoring Samples are identified by the Nbox or Rbox series EDP codes. Specific EDP codes are not provided in this table sheet, no other samples share these EDP codes. These samples will be transported in placental holders, rather than air sample envelopes.

** Minimum GEA analysis will be for Co-60, Zn-65, Ru-106, Sb-125, Cs-134, Cs-137, CsPr-144, Eu-154, and Eu-155. All radionuclides with positive GEA results shall be reported also.

222

10/27/15

Air Emissions CY-1996 Sample Analyses per Year (Performed by WSCF)

Plant	Sample ID	Analysis	12	4	4	4	4	4	4	20
PUREX	A552	206-A-1	12							
	A011 & A511	206-A-1	12							
	A540	206-A-2	4							
	A542	206-A-3	4							
	A543	206-A-5A	4							
	A545	206-A-5B	4							
	A546	206-A-6	4							
	A547	206-A-7	4							
	A548	206-A-8	4							
	A549	206-A-10	4							
	A550	206-A-14	4							
B-Plant	B601	206-B-1	28	4	4				4	
	B606	206-B-5	4							
	B748	206-B-10	28	4	4					
	B690	206-B-13	4							
East Tank Farms	E036	206-A-12	28	4	4				4	
	E032	206-A-13	4						4	
	E058	206-A-17	28	4	4				4	
	E026 & E027									52
	E000	206-A-18	4							
	E061	206-A-19	4							
	E197	206-A-20	4							
	E045	206-A-21	4							
	E543	206-A-22	20	4	4				4	
	E001 & E002									52
	E080	206-A-25	4							
	E297	206-A-26	4							
	E270	206-A-27	4							
	E272	206-A-28	4							
	E901	206-A-29	4							
	E903	206-A-30	4							
	E013	206-A-40	28	4	4				4	
	E026 & E029									32
	E018	206-A-41	4							
	E088	206-B-26	28	4	4				4	
	E066	206-C-5	28	4	4				4	
	E063	206-C-6	28	4	4				4	
	E064									52
	E044	206-C-7	4							
	E058	206-P-16	28	4	4				4	
	E120	206-P-17	28							
	E208	206-P-31	4							
	E301-389***	206-P-32	13	4	4				4	
	E301-389***	206-P-33	13	4	4				4	
	E301-389***	206-P-34	13	4	4				4	
	J00X	206-P-35	50							
	J00X	206-P-36	10							
	J00X	206-P-37	10							
	J00X	206-P-38	10							
	J00X	206-P-39	50							
ETF	E036	206-A-1	4							
222-S	E084	206-S-16	4							
Lab	S208	206-S-21	4						4	
S-Plant & U-Plant	S006	206-S-1	4							
	S032	206-S-2	4							
	S008	206-S-4	4							
	S004	206-S-6	4							
	S015	206-S-7E	4							
T-Plant & TRUBAF	S016	206-S-7W	4							
	U771	206-U-1	4							
	T785	206-T-1	4							
	T154	206-T-7	4							
West Tank Farms	T786	206-T-13	4							
	T783	206-T-11	4							
	T784	206-T-12	4							
	W191	206-P-22	4							
	W145	206-S-25	4							
	W190	206-P-23	4							
	W301-389***	206-P-32	13	4	4				4	
	W301-389***	206-P-33	13	4	4				4	
	W301-389***	206-P-34	13	4	4				4	
	W111	206-S-15	28	4	4				4	
	W098	206-S-18	4							
	W890	206-S-22	28	4	4				4	
	W117	206-T-17	4							
	W802	206-T-16	28	4	4				4	

Waste Comp.	Wt. 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