B&W Hanford Co.

a McDermott company

To T. M. Blaak S5-13 East Tank Farms Engineering, LHMC C. H. Mulkey R1-51 Environmental Cleanup and Compliance Project, LMHC	
From S. M. Eiholzer *Sean M. Eiholzer* S6-21 PUREX Stabilization Project	File No. Or Ref.: BWHC-9753209
Subj REQUEST FOR REVIEW AND APPROVAL: SECOND REVISED DOUBLE-SHELL TANK (DST) WASTE PROFILE SHEET AND PARAMETERS FOR OPERATIONAL DECISIONS SHEET FOR PUREX TANKS V11-1 AND 216-A-TK-2	Date: April 10, 1997

Attached for your review and approval is a second revised Double-Shell Tank (DST) Waste Profile Sheet and first revision of the Parameters for Operational Decisions Sheet for the combined solution from the PUREX #2 filter catch tank V11-1 and the PUREX main stack catch tank 216-A-TK-2. This solution will be transferred to the 222-S tanker trailer using an overground transfer line. Upon the tanker being filled and inspected, the solution will be transported to the East Tank Farms, 244-AR facility. PUREX plans to perform the tank transfers the week beginning April 28, 1997.

This revision clarifies comment received from East Tank Farms Engineering. Changes include changing the range for organic carbon and revising data for chloride. Also, PUREX will be providing caustic demand data which will be used in place of post-neutralization sample verification. This is necessary due to the inability to directly sample the 222-S tanker. Third, current sample results for tank V11-1 are attached and include requested ammonia analysis.

PUREX projects that two tanker trailer transfers of solution will go to the underground waste tanks. An estimated 6,000 gallons of solution is expected to be transferred. The majority of the solution will be from tank V11-1. The balance of the solution will be from tank 216-A-TK-2, caustic and nitrite addition and flush water. PUREX will take into consideration the flush water dilution by adding excess caustic and nitrite during the tank transfers. Caustic addition will be based primarily on caustic demand values given by current sample results. This should ensure that PUREX meets the required underground storage tanks operating specification.

Values used to prepare this waste profile are based on the sample results of tanks V11-1 and 302-A performed in June 1996 and February 1997. The June 1996 samples (P3711 and P3712) provide the majority of the maximum values of the bounding concentrations in the expected solutions. The February 1997 samples (P3765 and P3766) provide verification of the tank V11-1 solution and any

Approved for Public Release;
Further Dissemination Unlimited

constituents that were not analyzed in the June 1997 samples. The February 1997 sample results also show that the solution presently in tank V11-1 is more dilute than was previously in the tank during June 1996.

Solution that accumulates in tank 216-A-TK-2 is also expected to be as dilute as the current solution in tank V11-1. This is because the location of the source of the solution that is collected in tank 216-A-TK-2 is downstream of the PUREX HEPA filtration system. Due to time constraints, samples results for this tank are not yet available. However, PUREX will inform East Tank Farms Engineering of the sample results as they become available. These sample results will be known before PUREX attempts any transfers of 216-A-TK-2 solution to the 222-S tanker. Should the tank 216-A-TK-2 sample results show that the tank is outside any of the profile parameters, PUREX will notify East Tank Farms Engineering as soon as possible and request appropriate resolutions, advice and permission to resume transfers.

Should you need additional information, please contact me at 373-2694.

jy

Attachments 5

Distribution

B&W Hanford Company

Correspondence Control	A3-01
R. W. Bailey	S6-15
G. J. LeBaron	S6-19

Fluor Daniel Hanford Company

G. W. Reddick Jr.	N1-26

Lockheed Martin Hanford Corporation

G. R. Tardiff	S5-05

BWHC-9753209

Attachment 1

Waste Stream Profile Sheet

Consisting of 9 pages,
including cover page

Profile Identification # _____
Approval Date _____

WASTE STREAM PROFILE SHEET

Follow attached instructions when filling out this waste stream profile sheet.

I. WASTE SHIPPER INFORMATION

1. DST customer (waste shipper/generator): PUREX
2. Contact: Sean M. Eiholzer
3. Phone: 373-2694
4. Mail stop: S6-21

II. GENERAL WASTE INFORMATION

1. DST customer: PUREX
2. Waste stream name: Tank V11-1/216-A-TK-2
3. Process generating waste:

   Tanks V11-1 and 216-A-TK-2 are used to collect condensate and rain water which accumulates in the PUREX #2 deep bed filter and PUREX main stack plenum, respectively. Past experience (sampling and process knowledge) show that any solution in 216-A-TK-2 will be less concentrated (chemical and radionuclides) than tank V11-1; therefore, analysis from tank V11-1 are used to bound the profile of the solution. Approximately ninety percent of the solution will be from tank V11-1.

   The condensate for tank V11-1 is from PUREX canyon air that has passed through the #2 filter. The rain water is believed to have come from leakage through the filter coverblocks. Tank 216-A-TK-2 solution is from any liquid that has accumulated in the main stack and associated stack plenum.

   Sample analysis performed in June 1996 (attached) show that tank V11-1 had a cadmium concentration greater than one part per million. At this time the source of cadmium is unknown.

   There are two potential sources for solids in the solution. The first is due to the addition of sodium hydroxide and sodium nitrite to the solution to meet tank farm specifications. The second is that there may be some residual solids

Profile Identification # _____
Approval Date _____

that have accumulated in tank V11-1 from several years ago. The majority of solids would be caustic that was dumped into the tank without agitation. The last time this was done was over ten years ago. PUREX anticipates emptying the tank completely, so these solids may be in the solution. This would be the first time that the tank was completely emptied since it provided a waterseal. The waterseal has been determine to be no longer necessary.

4. Anticipated volume including any flush water: 6,000 gallons

5. Anticipated transfer frequency: Two transfers

6. Method of transfer (railcar, truck, pipeline): Truck (222-S tanker trailer)

7. Were analytical data used to fill out this profile sheet?

(Yes) No

If yes, cite document used as the basis for sampling and analysis (i.e., waste analysis plan and/or sampling analysis plan) and attach a complete copy of the latest results.

Please see the attached sample results. The basis for sampling and analysis is the PUREX Plant Waste Analysis Plan, WHC-SD-ANAL-020.

III. WASTE STREAM COMPOSITION

List all constituents which are greater than 1,000 mg/kg.

1. Component	2. Concentration range (units) (ppm)	3. Average % (sum of average % of waste stream components must total 100)	4. Basis for composition
Water	900,000 to 1,000,000	95%	PK
Sum of all other components	0 to 100,000	5%	B
	____ to ____		
	____ to ____		
	____ to ____		
	____ to ____		
	____ to ____		

Profile Identification # _____
Approval Date _____

IV. PHYSICAL PROPERTIES

1. Physical state at 70°F (circle all applicable)

   Liquid Semisolid Solid

   Slurry Sludge Gas

2. Viscosity at 70 o F *(degree)* < 10 mPa/ s[1] > 10 mPa/ s[1]

3. Is waste multi-layered? Yes No

   If yes, describe and quantify each layer:

   a. (Top) N/A %

   b. N/A %

   c. (Bottom) N/A %

   d. Suspended solids: __ < 1% _X_ between 1% and 10% __ > 10%

   e. Flash point: _X_ > 200 °F __ between 100 and 200 °F __ < 100 °F

   f. Color: Yellow

4 Does the waste contain polychlorinated biphenyls (PCB) ____ Yes _X_ No

   If so what is the concentration range ____ Maximum ____ Minimum

5. Does the waste contain organics __X__ Yes ____ No

   If yes what is the range of the organics 0.5 g/L Maximum 0 g/L Minimum.

[1] Millipascals per second

Profile Identification # _____
Approval Date _____

V. SPECIFIC ANALYSIS OF WASTE

Fill in the following chart giving maximum, minimum, or averages for each specific analysis. Also state whether this information is based on process knowledge or actual analytical data.

Parameter	Minimum (specify units)	Maximum (specify units)	Average (specify units)	Basis (process knowledge or analysis)
Chloride (only for waste going to 204-AR) (moles/liter)	0	5.0×10^{-3}	5.0×10^{-4}	PK, A
Energetics	No Energetics	No Energetics	No Energetics	A
Hydroxide (moles/liter)	0.01	0.1	0.01	PK, A
Moisture (volume %)	90	100	100	PK
Nitrate (moles/liter)	0	1.0	0.5	A
Nitrite (moles/liter)*	0.011	0.044	0.015	PK, A
Organics, separable (visible or no visible organic layer)	No Visible	No Visible	No Visible	PK, A
pH (pH units)*	12	13	12	PK, A
$^{239/240}Pu$ or total alpha (curies/liter)	0	2×10^{-6}	2×10^{-7}	PK, A
Solids (volume %)	0	10	1	PK, A
Specific gravity	0.98	1.1	1.02	PK, A
Uranium (if the concentration of ^{235}U is greater than 1% of the total uranium content) (curies/liter)	N/A	N/A	N/A	PK

* After chemical addition to meet Tank Farms specification

Profile Identification # _____
Approval Date _____

VI. REACTIVITY AND STABILITY

1. What are the Reactivity Group[1] number(s) for this waste? #106

2. Is this material stable? (Yes) No

   If no, explain: N/A

3. Is this material shock sensitive? Yes (No)

   If yes, explain: N/A

1. From EPA, 1984, *Design and Development of Hazardous Waste Reactivity Testing Protocol*, EPA-600/2-84-057, U. S. Environmental Protection Agency, Washington D.C. Alternatively the categories specified in 40 CFR 265 appendix V may be specified.

VII. DANGEROUS WASTE INFORMATION

1. Is this waste a dangerous waste as defined by WAC 173-303?

   (Yes) No

2. If it is a dangerous waste, list the applicable Hazardous and/or Dangerous Waste number(s) and explain the basis for the number. For example if you assign DOO1, the reason for selection is that the flash point is less than 140 °F.

Hazardous/Dangerous Waste number	Reason for selection
D002	The pH may be adjusted to a value greater than 12.5 during chemical adjustment to meet Tank Farms requirement for a pH greater than 12.0.
D006	Cadmium concentrations may exceed the threshold value of 1.0 ppm for dangerous waste.

Profile Identification # _____
Approval Date _____

3. Is waste a mixed waste? (Yes) No

4. List any reportable quantities listed in 40 CFR 302.4 which are applicable to the waste.

Constituent	Reportable quantity
pH (corrosive)	100 lb
Cadmium	1 lb
Cs-137	1.0 Ci
Sr 89/90	0.1 Ci
Pu 239/240	0.01 Ci
Am-241	0.01 Ci

1. WAC 173-303, 1994, "Dangerous Waste Regulations," *Washington Administrative Code*

Profile Identification # _____
Approval Date _____

VIII. LAND DISPOSAL RESTRICTION INFORMATION

Fill in the following information pertaining to all applicable Land Disposal Restrictions (LDR) (See 40 CFR 268.40[1] and WAC 173-303-140[2]). For certain waste designated as D001, D002, and/or D0012-D043, also indicate any underlying hazardous constituents which do not meet LDR requirements (see 40 CFR 268.7[1]).

Washington and/or EPA Dangerous (Hazardous) Waste Number	Waste Constituent for which the DST system must monitor Place an * before the entry if this is for an underlying hazardous constituent	Treatability Group (wastewater or nonwastewater)	Is waste analysis data attached? (Yes or No)
D002	Corrosive	nonwastewater	DEACT
D006	Cadmium	nonwastewater	1 mg/L

1. 40 CFR 268, "Land Disposal Restrictions," *Code of Federal Regulations*, as amended.

2. WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

Profile Identification # _____
Approval Date _____

IX. SUPPLEMENTAL INFORMATION AND ACCOUNTABILITY STATEMENT

1. Is there an attachment containing additional information?

   (Yes) No

   (list below)

   Sample results for tank V11-1 (P3711, P3765 and P3766) and tank 302A (P3712).

2. I hereby certify that to the best of my knowledge all information submitted in this and all attached documents contain true and accurate descriptions of this waste. Any sample that was analyzed or submitted was representative as defined in 40 CFR 261 Appendix I[1] or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the DST customer and generator has been disclosed.

APPROVALS:

_____ 17 Apr '97
G. J. LeBaron, Environmental Compliance Officer Date
PUREX Stabilization Project

_____ 4/10/97
S. M. Eiholzer, Cognizant Engineer Date
PUREX Stabilization Project

BWHC-9753209

Attachment 2

Parameters For Operational Decisions

Consisting of 2 pages,
including cover page

Parameters For Operational Decisions

Fill in the following chart giving maximum, minimum, or averages for each specific analyte. Also state whether this information is based on process knowledge or actual analytical data. This information suplements the information on the Waste Stream Profile Sheet which is required by the DST Waste Analysis Plan.

PARAMETER (specify units)	MINIMUM	MAXIMUM	AVERAGE	BASIS (Process Knowledge or Analysis)
Aluminum (ug/ml)	0	60	20	A
Americium 241 (uCi/ml)	0	$5x10^{-2}$	$1.3x10^{-2}$	A
Carbonate (moles/L)	0	0.04	0.01	PK
Cesium 137 (uCi/ml)	0	5	2.5	A
Cyanide (ug/ml)	0	5	0.33	PK
Flouride (ug/ml)	0	50	5	PK
Phosphate (ug/ml)	0	50	25	A
Plutonium 239/240 (g/L)	0	$1.5x10^{-5}$	$5.5x10^{-6}$	A
Sodium (ug/ml)	0	40,000	3,000	PK,A
Total Dissolved Solids, %	0	10	1.0	PK,A
Strontium 90 (uCi/ml)	0	5.0	2.0	A
Sulphate (ug/ml)	0	400	200	A
Total alpha (uCi/ml)	0	$1.5x10^{-2}$	$7.0x10^{-3}$	A
Total Fuel content	0	0	0	A
Organic Carbon (g/L)	0	0.5	0.2	A

BWHC-9753209

Attachment 3

Interim Results Report
3711
(Tank V11-1)

Consisting of 5 pages,
including cover page

INTERIM RESULTS REPORT 24 Jun 1996

Customer ID: 3711
Lab Sample#: S96P000093

Sample Date:
Recv. Date: 06/19/96 09:02

PARAMETER	RESULTS	UNITS
AMT/ORG/SLDS/COLOR/DOSE		
Color of Sample	yellow	
Dose Rate in mrad/hour	90	mrad/hour
Organic Vol Present/sampleprep	0	mL
Amt of Sam/Present sample prep	125	mL
Volume % Solids	<1	%
Alpha and Beta, Liquid Samples		
Alpha in Liquid Samples	7.21E-03	uCi/mL
Alpha Liq.- Rel. % Count Error	1.81E+01	% Ct. Error
Beta in Liquid Samples	5.13E+00	uCi/mL
Beta Liq.- Rel. % Count Error	4.78E-01	% Ct. Error
Am241 by Extraction		
Am-241 by Extraction		uCi/mL
Am-241 Rel. % Count Error		% Ct. Error
Am-243 Tracer for Am241 Method		% Recovery
GEA Large Library Method		
Sodium-22 by GEA	< 3.488e-03	uCi/mL
Na-22 GEA Rel. % Count Error	n/a	% Ct. Error
Sodium-24 by GEA	< 3.454e-03	uCi/mL
Na-24 GEA Rel. % Count Error	n/a	% Ct. Error
Potassium-40 by GEA	< 1.089e-01	uCi/mL
K-40 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-56 by GEA	< 2.742e-03	uCi/mL
Co-56 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-57 by GEA	< 5.568e-03	uCi/mL
Co-57 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-60 by GEA	< 2.713e-03	uCi/mL
Co-60 GEA Rel. % Count Error	n/a	% Ct. Error
Selenium-75 by GEA	< 1.101e-02	uCi/mL
Se-75 GEA Rel. % Count Error	n/a	% Ct. Error
Strontium-85 by GEA	< 8.262e-03	uCi/mL
Sr-85 GEA Rel. % Count Error	n/a	% Ct. Error
Yttrium-88 by GEA	< 3.422e-03	uCi/mL
Y-88 GEA Rel. % Count Error	n/a	% Ct. Error
Niobium-94 by GEA	< 2.872e-03	uCi/mL
Nb-94 GEA Rel % Counting Error	n/a	% Ct. Error
Zr/Nb-95 by GEA	< 6.137e-03	uCi/mL
Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct. Error
Ruthenium-103 by GEA	< 9.611e-03	uCi/mL
Ru-103 GEA Rel % Count Error	n/a	% Ct. Error
Ru/Rh-106 by GEA	< 1.221e-01	uCi/mL
Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct. Error
Cadmium-109 by GEA	< 1.754e-01	uCi/mL
Cd-109 GEA Rel % Counting Err	n/a	% Ct. Error
Tin-113 by GEA	< 1.281e-02	uCi/mL
Sn-113 GEA Rel % Counting Err	n/a	% Ct. Error
Iodine-131 by GEA	< 9.576e-03	uCi/mL
I-131 GEA Rel % Counting Err	n/a	% Ct. Error
Cesium-134 by GEA	< 6.856e-03	uCi/mL

Cs-134 GEA Rel. % Count Error		n/a	% Ct. Error
Cesium-137 by GEA		2.440e+00	uCi/mL
Cs-137 GEA Rel. % Count Error		1.57	% Ct. Error
Ce/Pr-144 by GEA	<	8.175e-02	uCi/mL
Ce/Pr-144 GEA Rel % Count Err		n/a	% Ct. Error
Europium-152 by GEA	<	1.447e-02	uCi/mL
Eu-152 GEA Rel % Counting Err		n/a	% Ct. Error
Europium-154 by GEA	<	1.013e-02	uCi/mL
Eu-154 GEA Rel % Counting Err		n/a	% Ct. Error
Europium-155 by GEA	<	2.213e-02	uCi/mL
Eu-155 GEA Rel % Counting Err		n/a	% Ct. Error
Mercury-203 by GEA	<	8.231e-03	uCi/mL
Hg-203 GEA Rel % Counting Err		n/a	% Ct. Error
Thallium-208 by GEA	<	1.046e-01	uCi/mL
Tl-208 GEA Rel % Counting Err		n/a	% Ct. Error
Bismuth-212 by GEA	<	4.132e-02	uCi/mL
Bi-212 GEA Rel % Counting Err		n/a	% Ct. Error
Lead-212 by GEA	<	1.456e-02	uCi/mL
Pb-212 GEA Rel % Counting Err		n/a	% Ct. Error
Bismuth-214 by GEA	<	1.408e-02	uCi/mL
Bi-214 GEA Rel % Counting Err		n/a	% Ct. Error
Lead-214 by GEA	<	3.793e-02	uCi/mL
Pb-214 GEA Rel % Counting Err		n/a	% Ct. Error
Radium-224 by GEA	<	1.595e-01	uCi/mL
Ra-224 GEA Rel % Counting Err		n/a	% Ct. Error
Radium-226 by GEA	<	1.593e-01	uCi/mL
Ra-226 GEA Rel % Counting Err		n/a	% Ct. Error
Actinium-228 by GEA	<	1.238e-02	uCi/mL
Ac-228 GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-228 by GEA	<	5.412e-01	uCi/mL
Th-228 GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-229 by GEA	<	2.530e-02	uCi/mL
Th-229 GEA Rel % Counting Err		n/a	% Ct. Error
Uranium/Thorium-233 by GEA	<	6.059e+00	uCi/mL
U/Th-233 GEA Rel % Count Err		n/a	% Ct. Error
Protactinium-233 by GEA	<	1.738e-02	uCi/mL
Pa-233 GEA Rel % Counting Err		n/a	% Ct. Error
Protactinium-234m by GEA	<	4.571e-03	uCi/mL
Pa-234m GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-234 by GEA	<	2.930e-01	uCi/mL
Th-234 GEA Rel % Counting Err		n/a	% Ct. Error
Uranium-235 by GEA	<	9.578e-03	uCi/mL
U-235 GEA Rel % Counting Err		n/a	% Ct. Error
Neptunium-237 by GEA	<	5.435e-02	uCi/mL
Np-237 GEA Rel % Counting Err		n/a	% Ct. Error
Neptunium-239 by GEA	<	2.110e-02	uCi/mL
Np-239 GEA Rel % Counting Err		n/a	% Ct. Error
Plutonium-239 by GEA	<	7.302e+01	uCi/mL
Pu-239 GEA Rel % Counting Err		n/a	% Ct. Error
Americium-241 by GEA	<	4.832e-02	uCi/mL
Am-241 GEA Rel. % Count Error		n/a	% Ct. Error
Americium-243 by GEA	<	1.449e-02	uCi/mL
Am-243 GEA Rel. % Count Error		n/a	% Ct. Error
ICP (Acid Added to Liquid)			
Silver-ICP-Acid Dil.		1.28e-01	ug/mL

Aluminium-ICP-Acid Dil.		1.34e+01	ug/mL
Arsenic-ICP-Acid Dil.	<	3.00e-01	ug/mL
Boron-ICP-Acid Dil.		2.29e-01	ug/mL
Barium-ICP-Acid Dil.		1.08e+00	ug/mL
Beryllium-ICP-Acid Dil.	<	1.50e-02	ug/mL
Bismuth-ICP-Acid Dil.	<	3.00e-01	ug/mL
Calcium-ICP-Acid Dil.		1.00e+03	ug/mL
Cadmium-ICP-Acid Dil.		1.32e+00	ug/mL
Cerium-ICP-Acid Dil.	<	3.00e-01	ug/mL
Cobalt-ICP-Acid Dil.		2.67e-01	ug/mL
Chromium-ICP-Acid Dil.		1.27e-01	ug/mL
Copper-ICP-Acid Dil.		1.68e+00	ug/mL
Iron-ICP-Acid Dil.		1.84e+00	ug/mL
Potassium-ICP-Acid Dil.		6.06e+01	ug/mL
Lanthanum-ICP-Acid Dil.	<	1.50e-01	ug/mL
Lithium-ICP-Acid Dil.		5.02e-02	ug/mL
Magnesium-ICP-Acid Dil.		6.04e+01	ug/mL
Manganese-ICP-Acid Dil.		1.01e+01	ug/mL
Molybdenum-ICP-Acid Dil.	<	1.50e-01	ug/mL
Sodium-ICP-Acid Dil.		1.51e+03	ug/mL
Neodymium-ICP-Acid Dil.	<	3.00e-01	ug/mL
Nickel-ICP-Acid Dil.		2.94e+00	ug/mL
Phosphorus-ICP-Acid Dil.		1.10e+01	ug/mL
Lead-ICP-Acid Dil.		6.32e-01	ug/mL
Sulfer-ICP-Acid Dil.		6.98e+01	ug/mL
Antimony-ICP-Acid Dil.	<	1.80e-01	ug/mL
Selenium-ICP-Acid Dil.	<	3.00e-01	ug/mL
Silicon-ICP-Acid Dil.		5.10e+00	ug/mL
Samarium-ICP-Acid Dil.	<	3.00e-01	ug/mL
Strontium-ICP-Acid Dil.		8.28e+00	ug/mL
Titanium-ICP-Acid Dil.	<	3.00e-02	ug/mL
Thallium-ICP-Acid Dil.	<	6.00e-01	ug/mL
Uranium-ICP-Acid Dil.		4.12e+01	ug/mL
Vanadium-ICP-Acid Dil.	<	1.50e-01	ug/mL
Zinc-ICP-Acid Dil.		3.93e+00	ug/mL
Zirconium-ICP-Acid Dil.	<	3.00e-02	ug/mL
Pu239,Pu238 by TRU-SPEC Resin			
Pu-239/240 by TRU-SPEC Resin		3.43E-04	uCi/mL
Pu-236 Tracer % Recovery		5.02E+01	% Recovery
Pu239 Relative % Count Error		3.02E+00	% Ct. Error
Pu-238 by Ion Exchange	<	8.24E-05	uCi/mL
Pu-238 Relative % Counting Err		7.14E+00	% Ct. Error
Sr-89/90 High Level			
Strontium-89/90 High Level		2.05E+00	uCi/mL
Sr-89/90 Carrier Recovery		8.94E+01	% Recovery
Sr-89/90 Rel. % Count Error		4.69E-01	% Ct. Error
Uranium by Phosphorescence			
Uranium by Phosphorescence		6.18E+01	ug/mL
U-Phosphorescence Inst. Error		1.33E+00	% Inst Error
OTHER ANALYSIS			
% Water by TGA using Mettler		94.12	%
Ammonia by ISE-Std Additions		1.42e4	ug/mL
Cyanide Water Distillation			ug/mL
DSC Exotherm using Mettler		0	Joules/g
Nitrate by IC-Dionex 100		4.74e4	ug/mL

Nitrite by IC - Dionex 100	<	108.7	ug/mL
OH- by Pot. Titration		pH=6.43	ug/mL
Specific Gravity		1.014	Sp.G.
Tot. Inorg. Carbon by Coul.		7.00E+00	ug/mL
Tot. Organic Carbon by Coul.		1.52e2	ug/mL
pH Direct		6.43	pH

BWHC-9753209

Attachment 4

Interim Results Report
3712
(Tank 302A)

Consisting of 7 pages,
including cover page

INTERIM RESULTS REPORT 24 Jun
1996

Customer ID: P3712
Lab Sample#: S96P000094

Sample Date:
Recv. Date: 06/20/96 09:43

PARAMETER	RESULTS	UNITS
AMT/ORG/SLDS/COLOR/DOSE		
Color of Sample	yellow	
Dose Rate in mrad/hour	40	mrad/hour
Organic Vol Present/sampleprep	0	mL
Amt of Sam/Present sample prep	35	mL
Volume % Solids	< 1	%
Alpha and Beta, Liquid Samples		
Alpha in Liquid Samples	1.76E-03	uCi/mL
Alpha Liq.- Rel. % Count Error	4.08E+01	% Ct. Error
Beta in Liquid Samples	4.90E+00	uCi/mL
Beta Liq.- Rel. % Count Error	4.94E-01	% Ct. Error
Am241 by Extraction		
Am-241 by Extraction		uCi/mL
Am-241 Rel. % Count Error		% Ct. Error
Am-243 Tracer for Am241 Method		% Recovery
GEA Large Library Method		
Sodium-22 by GEA	< 2.046e-03	uCi/mL
Na-22 GEA Rel. % Count Error	n/a	% Ct. Error
Sodium-24 by GEA	< 3.192e-03	uCi/mL
Na-24 GEA Rel. % Count Error	n/a	% Ct. Error
Potassium-40 by GEA	< 1.023e-01	uCi/mL
K-40 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-56 by GEA	< 2.652e-03	uCi/mL
Co-56 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-57 by GEA	< 4.923e-03	uCi/mL
Co-57 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-60 by GEA	< 3.691e-03	uCi/mL
Co-60 GEA Rel. % Count Error	n/a	% Ct. Error
Selenium-75 by GEA	< 1.027e-02	uCi/mL
Se-75 GEA Rel. % Count Error	n/a	% Ct. Error
Strontium-85 by GEA	< 7.999e-03	uCi/mL
Sr-85 GEA Rel. % Count Error	n/a	% Ct. Error
Yttrium-88 by GEA	< 2.305e-03	uCi/mL
Y-88 GEA Rel. % Count Error	n/a	% Ct. Error
Niobium-94 by GEA	< 2.167e-03	uCi/mL
Nb-94 GEA Rel % Counting Error	n/a	% Ct. Error
Zr/Nb-95 by GEA	< 5.999e-03	uCi/mL
Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct. Error
Ruthenium-103 by GEA	< 8.570e-03	uCi/mL
Ru-103 GEA Rel % Count Error	n/a	% Ct. Error
Ru/Rh-106 by GEA	< 1.245e-01	uCi/mL
Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct. Error
Cadmium-109 by GEA	< 1.636e-01	uCi/mL
Cd-109 GEA Rel % Counting Err	n/a	% Ct. Error
Tin-113 by GEA	< 1.184e-02	uCi/mL
Sn-113 GEA Rel % Counting Err	n/a	% Ct. Error
Iodine-131 by GEA	< 8.699e-03	uCi/mL
I-131 GEA Rel % Counting Err	n/a	% Ct. Error
Cesium-134 by GEA	< 5.909e-03	uCi/mL

Cs-134 GEA Rel. % Count Error		n/a	% Ct. Error
Cesium-137 by GEA		2.060e+00	uCi/mL
Cs-137 GEA Rel. % Count Error		1.68	% Ct. Error
Ce/Pr-144 by GEA	<	7.638e-02	uCi/mL
Ce/Pr-144 GEA Rel % Count Err		n/a	% Ct. Error
Europium-152 by GEA	<	1.447e-02	uCi/mL
Eu-152 GEA Rel % Counting Err		n/a	% Ct. Error
Europium-154 by GEA	<	5.916e-03	uCi/mL
Eu-154 GEA Rel % Counting Err		n/a	% Ct. Error
Europium-155 by GEA	<	2.228e-02	uCi/mL
Eu-155 GEA Rel % Counting Err		n/a	% Ct. Error
Mercury-203 by GEA	<	7.395e-03	uCi/mL
Hg-203 GEA Rel % Counting Err		n/a	% Ct. Error
Thallium-208 by GEA	<	9.380e-02	uCi/mL
Tl-208 GEA Rel % Counting Err		n/a	% Ct. Error
Bismuth-212 by GEA	<	4.743e-02	uCi/mL
Bi-212 GEA Rel % Counting Err		n/a	% Ct. Error
Lead-212 by GEA	<	1.416e-02	uCi/mL
Pb-212 GEA Rel % Counting Err		n/a	% Ct. Error
Bismuth-214 by GEA	<	1.423e-02	uCi/mL
Bi-214 GEA Rel % Counting Err		n/a	% Ct. Error
Lead-214 by GEA	<	3.610e-02	uCi/mL
Pb-214 GEA Rel % Counting Err		n/a	% Ct. Error
Radium-224 by GEA	<	1.542e-01	uCi/mL
Ra-224 GEA Rel % Counting Err		n/a	% Ct. Error
Radium-226 by GEA	<	1.528e-01	uCi/mL
Ra-226 GEA Rel % Counting Err		n/a	% Ct. Error
Actinium-228 by GEA	<	1.326e-02	uCi/mL
Ac-228 GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-228 by GEA	<	5.135e-01	uCi/mL
Th-228 GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-229 by GEA	<	2.374e-02	uCi/mL
Th-229 GEA Rel % Counting Err		n/a	% Ct. Error
Uranium/Thorium-233 by GEA	<	5.625e+00	uCi/mL
U/Th-233 GEA Rel % Count Err		n/a	% Ct. Error
Protactinium-233 by GEA	<	1.690e-02	uCi/mL
Pa-233 GEA Rel % Counting Err		n/a	% Ct. Error
Protactinium-234m by GEA	<	5.343e-03	uCi/mL
Pa-234m GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-234 by GEA	<	2.971e-01	uCi/mL
Th-234 GEA Rel % Counting Err		n/a	% Ct. Error
Uranium-235 by GEA	<	9.228e-03	uCi/mL
U-235 GEA Rel % Counting Err		n/a	% Ct. Error
Neptunium-237 by GEA	<	4.877e-02	uCi/mL
Np-237 GEA Rel % Counting Err		n/a	% Ct. Error
Neptunium-239 by GEA	<	2.098e-02	uCi/mL
Np-239 GEA Rel % Counting Err		n/a	% Ct. Error
Plutonium-239 by GEA	<	6.638e+01	uCi/mL
Pu-239 GEA Rel % Counting Err		n/a	% Ct. Error
Americium-241 by GEA	<	4.611e-02	uCi/mL
Am-241 GEA Rel. % Count Error		n/a	% Ct. Error
Americium-243 by GEA	<	1.356e-02	uCi/mL
Am-243 GEA Rel. % Count Error		n/a	% Ct. Error
ICP (Acid Added to Liquid)			
Silver-ICP-Acid Dil.		3.60e+00	ug/mL

Aluminium-ICP-Acid Dil.		2.90e+00	ug/mL
Arsenic-ICP-Acid Dil.	<	4.00e-01	ug/mL
Boron-ICP-Acid Dil.		2.05e-01	ug/mL
Barium-ICP-Acid Dil.		8.74e-01	ug/mL
Beryllium-ICP-Acid Dil.	<	2.00e-02	ug/mL
Bismuth-ICP-Acid Dil.	<	4.00e-01	ug/mL
Calcium-ICP-Acid Dil.		8.37e+02	ug/mL
Cadmium-ICP-Acid Dil.		9.75e-01	ug/mL
Cerium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Cobalt-ICP-Acid Dil.		2.07e-01	ug/mL
Chromium-ICP-Acid Dil.		2.06e-01	ug/mL
Copper-ICP-Acid Dil.		1.79e+00	ug/mL
Iron-ICP-Acid Dil.		2.47e+00	ug/mL
Potassium-ICP-Acid Dil.		5.40e+01	ug/mL
Lanthanum-ICP-Acid Dil.	<	2.00e-01	ug/mL
Lithium-ICP-Acid Dil.		4.40e-02	ug/mL
Magnesium-ICP-Acid Dil.		5.05e+01	ug/mL
Manganese-ICP-Acid Dil.		6.92e+00	ug/mL
Molybdenum-ICP-Acid Dil.	<	2.00e-01	ug/mL
Sodium-ICP-Acid Dil.		1.84e+03	ug/mL
Neodymium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Nickel-ICP-Acid Dil.		2.37e+00	ug/mL
Phosphorus-ICP-Acid Dil.		1.06e+01	ug/mL
Lead-ICP-Acid Dil.	<	4.00e-01	ug/mL
Sulfer-ICP-Acid Dil.		6.06e+01	ug/mL
Antimony-ICP-Acid Dil.	<	2.40e-01	ug/mL
Selenium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Silicon-ICP-Acid Dil.		4.40e+00	ug/mL
Samarium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Strontium-ICP-Acid Dil.		6.95e+00	ug/mL
Titanium-ICP-Acid Dil.		2.90e-01	ug/mL
Thallium-ICP-Acid Dil.	<	8.00e-01	ug/mL
Uranium-ICP-Acid Dil.		1.69e+01	ug/mL
Vanadium-ICP-Acid Dil.	<	2.00e-01	ug/mL
Zinc-ICP-Acid Dil.		2.97e+00	ug/mL
Zirconium-ICP-Acid Dil.		2.06e+00	ug/mL
Pu239,Pu238 by TRU-SPEC Resin			
Pu-239/240 by TRU-SPEC Resin		9.95E-04	uCi/mL
Pu-236 Tracer % Recovery		5.78E+01	% Recovery
Pu239 Relative % Count Error		1.48E+00	% Ct. Error
Pu-238 by Ion Exchange	<	6.35E-05	uCi/mL
Pu-238 Relative % Counting Err		2.55E+00	% Ct. Error
Uranium by Phosphorescence			
Uranium by Phosphorescence		1.98E+01	ug/mL
U-Phosphorescence Inst. Error		1.30E+00	% Inst Error
OTHER ANALYSIS			
% Water by TGA using Mettler		95.40	%
Caustic Ratio		5.64e-1	lbs NaOH/gal
DSC Exotherm using Mettler		0	Joules/g
Nitrate by IC-Dionex 100		4.06e4	ug/mL
Nitrite by IC - Dionex 100	<	108.7	ug/mL
OH- by Pot. Titration		3.20E+2	ug/mL
Specific Gravity		1.004	Sp.G.
Tot. Organic Carbon by Coul.		2.41e2	ug/mL
pH Direct		8.02	pH

INTERIM RESULTS REPORT
1996

24 Jun

Customer ID: P3713
Lab Sample#: S96P000095

Sample Date:
Recv. Date: 06/20/96 09:43

PARAMETER	RESULTS	UNITS
AMT/ORG/SLDS/COLOR/DOSE		
Color of Sample	yellow	
Dose Rate in mrad/hour	50	mrad/hour
Organic Vol Present/sampleprep	0	mL
Amt of Sam/Present sample prep	35	mL
Volume % Solids	< 1	%
Alpha and Beta, Liquid Samples		
Alpha in Liquid Samples	4.32E-03	uCi/mL
Alpha Liq.- Rel. % Count Error	2.54E+01	% Ct. Error
Beta in Liquid Samples	5.70E+00	uCi/mL
Beta Liq.- Rel. % Count Error	4.56E-01	% Ct. Error
Am241 by Extraction		
Am-241 by Extraction		uCi/mL
Am-241 Rel. % Count Error		% Ct. Error
Am-243 Tracer for Am241 Method		% Recovery
GEA Large Library Method		
Sodium-22 by GEA	< 3.409e-03	uCi/mL
Na-22 GEA Rel. % Count Error	n/a	% Ct. Error
Sodium-24 by GEA	< 3.697e-03	uCi/mL
Na-24 GEA Rel. % Count Error	n/a	% Ct. Error
Potassium-40 by GEA	0.000e+00	uCi/mL
K-40 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-56 by GEA	< 2.470e-03	uCi/mL
Co-56 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-57 by GEA	< 5.104e-03	uCi/mL
Co-57 GEA Rel. % Count Error	n/a	% Ct. Error
Cobalt-60 by GEA	< 4.391e-03	uCi/mL
Co-60 GEA Rel. % Count Error	n/a	% Ct. Error
Selenium-75 by GEA	< 1.051e-02	uCi/mL
Se-75 GEA Rel. % Count Error	n/a	% Ct. Error
Strontium-85 by GEA	< 7.737e-03	uCi/mL
Sr-85 GEA Rel. % Count Error	n/a	% Ct. Error
Yttrium-88 by GEA	0.000e+00	uCi/mL
Y-88 GEA Rel. % Count Error	n/a	% Ct. Error
Niobium-94 by GEA	< 3.088e-03	uCi/mL
Nb-94 GEA Rel % Counting Error	n/a	% Ct. Error
Zr/Nb-95 by GEA	< 6.154e-03	uCi/mL
Zr/Nb-95 GEA Rel % Count. Err	n/a	% Ct. Error
Ruthenium-103 by GEA	< 8.238e-03	uCi/mL
Ru-103 GEA Rel % Count Error	n/a	% Ct. Error
Ru/Rh-106 by GEA	< 1.198e-01	uCi/mL
Ru/Rh-106 GEA Rel. % Count Err	n/a	% Ct. Error
Cadmium-109 by GEA	< 1.666e-01	uCi/mL
Cd-109 GEA Rel % Counting Err	n/a	% Ct. Error
Tin-113 by GEA	< 1.195e-02	uCi/mL
Sn-113 GEA Rel % Counting Err	n/a	% Ct. Error
Iodine-131 by GEA	< 8.657e-03	uCi/mL
I-131 GEA Rel % Counting Err	n/a	% Ct. Error
Cesium-134 by GEA	< 5.974e-03	uCi/mL

Cs-134 GEA Rel. % Count Error		n/a	% Ct. Error
Cesium-137 by GEA		2.120e+00	uCi/mL
Cs-137 GEA Rel. % Count Error		1.67	% Ct. Error
Ce/Pr-144 by GEA	<	7.719e-02	uCi/mL
Ce/Pr-144 GEA Rel % Count Err		n/a	% Ct. Error
Europium-152 by GEA	<	1.266e-02	uCi/mL
Eu-152 GEA Rel % Counting Err		n/a	% Ct. Error
Europium-154 by GEA	<	9.921e-03	uCi/mL
Eu-154 GEA Rel % Counting Err		n/a	% Ct. Error
Europium-155 by GEA	<	2.176e-02	uCi/mL
Eu-155 GEA Rel % Counting Err		n/a	% Ct. Error
Mercury-203 by GEA	<	7.203e-03	uCi/mL
Hg-203 GEA Rel % Counting Err		n/a	% Ct. Error
Thallium-208 by GEA	<	9.744e-02	uCi/mL
Tl-208 GEA Rel % Counting Err		n/a	% Ct. Error
Bismuth-212 by GEA	<	3.832e-02	uCi/mL
Bi-212 GEA Rel % Counting Err		n/a	% Ct. Error
Lead-212 by GEA	<	1.345e-02	uCi/mL
Pb-212 GEA Rel % Counting Err		n/a	% Ct. Error
Bismuth-214 by GEA	<	1.401e-02	uCi/mL
Bi-214 GEA Rel % Counting Err		n/a	% Ct. Error
Lead-214 by GEA	<	3.402e-02	uCi/mL
Pb-214 GEA Rel % Counting Err		n/a	% Ct. Error
Radium-224 by GEA	<	1.541e-01	uCi/mL
Ra-224 GEA Rel % Counting Err		n/a	% Ct. Error
Radium-226 by GEA	<	1.553e-01	uCi/mL
Ra-226 GEA Rel % Counting Err		n/a	% Ct. Error
Actinium-228 by GEA	<	1.232e-02	uCi/mL
Ac-228 GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-228 by GEA	<	5.310e-01	uCi/mL
Th-228 GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-229 by GEA	<	2.450e-02	uCi/mL
Th-229 GEA Rel % Counting Err		n/a	% Ct. Error
Uranium/Thorium-233 by GEA	<	5.723e+00	uCi/mL
U/Th-233 GEA Rel % Count Err		n/a	% Ct. Error
Protactinium-233 by GEA	<	1.675e-02	uCi/mL
Pa-233 GEA Rel % Counting Err		n/a	% Ct. Error
Protactinium-234m by GEA	<	4.154e-03	uCi/mL
Pa-234m GEA Rel % Counting Err		n/a	% Ct. Error
Thorium-234 by GEA	<	2.877e-01	uCi/mL
Th-234 GEA Rel % Counting Err		n/a	% Ct. Error
Uranium-235 by GEA	<	9.468e-03	uCi/mL
U-235 GEA Rel % Counting Err		n/a	% Ct. Error
Neptunium-237 by GEA	<	5.077e-02	uCi/mL
Np-237 GEA Rel % Counting Err		n/a	% Ct. Error
Neptunium-239 by GEA	<	2.101e-02	uCi/mL
Np-239 GEA Rel % Counting Err		n/a	% Ct. Error
Plutonium-239 by GEA	<	6.727e+01	uCi/mL
Pu-239 GEA Rel % Counting Err		n/a	% Ct. Error
Americium-241 by GEA	<	4.610e-02	uCi/mL
Am-241 GEA Rel. % Count Error		n/a	% Ct. Error
Americium-243 by GEA	<	1.480e-02	uCi/mL
Am-243 GEA Rel. % Count Error		n/a	% Ct. Error
ICP (Acid Added to Liquid)			
Silver-ICP-Acid Dil.		3.62e+00	ug/mL

Aluminium-ICP-Acid Dil.		5.23e+00	ug/mL
Arsenic-ICP-Acid Dil.	<	4.00e-01	ug/mL
Boron-ICP-Acid Dil.	<	2.00e-01	ug/mL
Barium-ICP-Acid Dil.		8.91e-01	ug/mL
Beryllium-ICP-Acid Dil.	<	2.00e-02	ug/mL
Bismuth-ICP-Acid Dil.	<	4.00e-01	ug/mL
Calcium-ICP-Acid Dil.		8.54e+02	ug/mL
Cadmium-ICP-Acid Dil.		1.02e+00	ug/mL
Cerium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Cobalt-ICP-Acid Dil.		2.24e-01	ug/mL
Chromium-ICP-Acid Dil.		2.45e-01	ug/mL
Copper-ICP-Acid Dil.		1.76e+00	ug/mL
Iron-ICP-Acid Dil.		6.01e+00	ug/mL
Potassium-ICP-Acid Dil.		5.27e+01	ug/mL
Lanthanum-ICP-Acid Dil.	<	2.00e-01	ug/mL
Lithium-ICP-Acid Dil.		5.04e-02	ug/mL
Magnesium-ICP-Acid Dil.		5.00e+01	ug/mL
Manganese-ICP-Acid Dil.		7.93e+00	ug/mL
Molybdenum-ICP-Acid Dil.	<	2.00e-01	ug/mL
Sodium-ICP-Acid Dil.		1.77e+03	ug/mL
Neodymium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Nickel-ICP-Acid Dil.		2.51e+00	ug/mL
Phosphorus-ICP-Acid Dil.		1.21e+01	ug/mL
Lead-ICP-Acid Dil.		4.22e-01	ug/mL
Sulfer-ICP-Acid Dil.		6.02e+01	ug/mL
Antimony-ICP-Acid Dil.	<	2.40e-01	ug/mL
Selenium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Silicon-ICP-Acid Dil.		8.06e+00	ug/mL
Samarium-ICP-Acid Dil.	<	4.00e-01	ug/mL
Strontium-ICP-Acid Dil.		6.82e+00	ug/mL
Titanium-ICP-Acid Dil.		6.03e-01	ug/mL
Thallium-ICP-Acid Dil.	<	8.00e-01	ug/mL
Uranium-ICP-Acid Dil.		1.78e+01	ug/mL
Vanadium-ICP-Acid Dil.	<	2.00e-01	ug/mL
Zinc-ICP-Acid Dil.		3.18e+00	ug/mL
Zirconium-ICP-Acid Dil.		4.46e+00	ug/mL
Pu239,Pu238 by TRU-SPEC Resin			
Pu-239/240 by TRU-SPEC Resin		8.77E-04	uCi/mL
Pu-236 Tracer % Recovery		4.49E+01	% Recovery
Pu239 Relative % Count Error		1.63E+00	% Ct. Error
Pu-238 by Ion Exchange	<	7.43E-05	uCi/mL
Pu-238 Relative % Counting Err		2.87E+00	% Ct. Error
Uranium by Phosphorescence			
Uranium by Phosphorescence		2.13E+01	ug/mL
U-Phosphorescence Inst. Error		1.29E+00	% Inst Error
OTHER ANALYSIS			
% Water by TGA using Mettler		93.76	%
Caustic Ratio		4.41e-1	lbs NaOH/gal
DSC Exotherm using Mettler		0	Joules/g
Nitrate by IC-Dionex 100		3.95e4	ug/mL
Nitrite by IC - Dionex 100	<	108.7	ug/mL
OH- by Pot. Titration		2.86E+2	ug/mL
Specific Gravity		1.008	Sp.G.
Tot. Organic Carbon by Coul.		1.72e2	ug/mL
pH Direct		8.00	pH

BWHC-9753209

Attachment 5

Sample Inquiry by Group
Samples P3765 and P3766
(Tank V11-1)

Consisting of 5 pages,
including cover page

Wed, Apr 9, 1997 2:45 PM

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: MISC

Parameter	Rep	Result	Unit	%Recov	Date
Sample #: S97P000011 Sample ID: P3765					
Silver-ICP-Acid Dil.	0	2.83e-02	ug/mL		03/05/9
Aluminium-ICP-Acid Dil.	0	6.79e-01	ug/mL		03/05/9
Alpha in Liquid Samples	0	3.49E-04	uCi/mL		03/04/9
Alpha Liq.- Rel. % Count Error	0	2.92E+01	% Ct. Error		03/04/9
Am-241 by Extraction	0	2.30E-04	uCi/mL		03/09/9
Am-241 Rel. % Count Error	0	1.69E+00	% Ct. Error		03/09/9
Am-243 Tracer for Am241 Method	0	9.75E+01	% Recovery		03/09/9
Appearance of Sample-Smpl Prep	0	complete			02/28/9
Arsenic-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/9
Boron-ICP-Acid Dil.	0	7.32e-02	ug/mL		03/05/9
Barium-ICP-Acid Dil.	0	1.08e-01	ug/mL		03/05/9
Beryllium-ICP-Acid Dil.	0	< 5.00e-03	ug/mL		03/05/9
Beta in Liquid Samples	0	7.76E-01	uCi/mL		03/04/9
Beta Liq.- Rel. % Count Error	0	4.11E-01	% Ct. Error		03/04/9
Bismuth-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/9
Bromide by Ion Chromatograph	0	< 2.512e+01	ug/mL		03/09/9
Caustic Ratio	0	6.30e-2	lbs NaOH/gal		03/23/9
C-14 Small Volume	0	< 2.31E-06	uCi/mL		03/21/9
C-14, Rel.% Count Error	0	4.05E+00	% Ct. Error		03/21/
Calcium-ICP-Acid Dil.	0	2.09e+02	ug/mL		03/05/
Cadmium-ICP-Acid Dil.	0	1.33e-01	ug/mL		03/05/
Cerium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Chloride-IC-Dionex 4000/4500	0	1.721e+01	ug/mL		03/09/
Cyanide Water Distillation	0	<1.10e-2	ug/mL		04/08/
Cobalt-ICP-Acid Dil.	0	3.20e-02	ug/mL		03/05/
Cobalt-60 by GEA	0	< 7.440e-05	uCi/mL		03/04/
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		03/04/
Chromium-ICP-Acid Dil.	0	2.54e-02	ug/mL		03/05/
Cesium-137 by GEA	0	3.310e-01	uCi/mL		03/04/
Cs-137 GEA Rel. % Count Error	0	0.530	% Ct. Error		03/04/
Copper-ICP-Acid Dil.	0	8.27e-02	ug/mL		03/05/
Dose Rate in mrad/hour	0	25	mrad/hour		02/28/
DSC Exotherm on Perkin Elmer	0	0	Joules/g		03/04/
Europium-154 by GEA	0	< 1.260e-04	uCi/mL		03/04/
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		03/04/
Fluoride-IC-Dionex 4000/4500	0	1.294e+01	ug/mL		03/09/
Iron-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05/
Tritium By Lachat	0	1.11E-05	uCi/mL		03/13/
H3 - Rel. % Count Error	0	5.15E+00	% Ct. Error		03/13/
Iodine-129 Waste Tank Samples	0	< 1.53E-05	uCi/mL		03/24/
I-129 % Carrier Recovery	0	4.66E+01	% Recovery		03/24/
I-129 Rel. % Count Error	0	0.00E+00	% Ct. Error		03/24/
Potassium-ICP-Acid Dil.	0	1.18e+01	ug/mL		03/05/
Lanthanum-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05/
Lithium-ICP-Acid Dil.	0	1.11e-02	ug/mL		03/05/
Magnesium-ICP-Acid Dil.	0	1.43e+01	ug/mL		03/05/
Manganese-ICP-Acid Dil.	0	1.45e+00	ug/mL		03/05/
Molybdenum-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05/
Sodium-ICP-Acid Dil.	0	2.28e+02	ug/mL		03/05/

Wed, Apr 9, 1997 2:45 PM

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: MISC

Parameter	Rep	Result	Unit	%Recov	Date
Sample #: S97P000011 Sample ID: P3765 [Continued]					
Neodymium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Ammonia by ISE-Std Additions	0	1.41E+03	ug/mL		04/01/
Nickel-ICP-Acid Dil.	0	2.62e-01	ug/mL		03/05/
Nitrite-IC - Dionex 4000/4500	0	< 2.19e1	ug/mL		03/23/
Nitrate by IC-Dionex 4000/4500	0	7.178e+03	ug/mL		03/09/
OH- by Pot. Titration	0	<125	ug/mL		03/22/
Caustic Demand	0	< 1.47e-1	moles OH-/L		04/01/
Oxalate by IC-Dionex 4000/4500	0	< 2.111e+01	ug/mL		03/09/
Phosphorus-ICP-Acid Dil.	0	8.45e-01	ug/mL		03/05/
Lead-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
pH Direct	0	7.01	pH		03/04/
Phosphate-IC-Dionex 4000/4500	0	< 2.412e+01	ug/mL		03/09/
Pu-238 by Ion Exchange	0	< 1.30E-05	uCi/mL		03/09/
Pu-238 Relative % Counting Err	0	1.00E+02	% Ct. Error		03/09/
Pu-239/240 by TRU-SPEC Resin	0	1.49E-05	uCi/mL		03/09/
Pu239 Relative % Count Error	0	5.52E+00	% Ct. Error		03/09/
Pu-236 Tracer % Recovery	0	9.58E+01	% Recovery		03/09/
Sulfur-ICP-Acid Dil.	0	1.69e+01	ug/mL		03/05/
Amt of Sam/Present sample prep	0	125	mL		02/28/
Antimony-ICP-Acid Dil.	0	< 6.00e-02	ug/mL		03/05/
Selenium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Silicon-ICP-Acid Dil.	0	5.03e+00	ug/mL		03/05/
Samarium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Sulfate by IC-Dionex 4000/4500	0	1.08e2	ug/mL		03/23/
Strontium-ICP-Acid Dil.	0	1.31e+00	ug/mL		03/05/
Strontium-89/90 High Level	0	2.86E-01	uCi/mL		03/13/
Sr-89/90 Carrier Recovery	0	9.18E+01	% Recovery		03/13/
Sr-89/90 Rel. % Count Error	0	8.21E-01	% Ct. Error		03/13/
Technetium-99 Liq. Scint.	0	8.34E-05	uCi/mL		03/08/
Tc-99 Rel. % Count Error	0	8.27E+00	% Ct. Error		03/08/
Tc-99 Tracer % Recovery	0	3.76E+01	% Recovery		03/08/
% Water by TGA on Perkin Elmer	0	98.69	%		03/04/
Titanium-ICP-Acid Dil.	0	< 1.00e-02	ug/mL		03/05/
TIC by Acid/Coulometry	0	2.54E+01	ug/mL		04/07/
Thallium-ICP-Acid Dil.	0	< 2.00e-01	ug/mL		03/05/
TOC by Persulfate/Coulometry	0	< 4.00E+01	ug/mL		04/07/
Uranium by Phosphorescence	0	4.07E+01	ug/mL		03/29/
U-Phosphorescence Inst. Error	0	3.07E+00	% Inst Error		03/29/
Uranium-ICP-Acid Dil.	0	4.44e+01	ug/mL		03/05/
Uranium-235 by GEA	0	< 4.049e-04	uCi/mL		03/04/
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		03/04/
Vanadium-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05/
Zinc-ICP-Acid Dil.	0	2.89e-01	ug/mL		03/05/
Zirconium-ICP-Acid Dil.	0	< 1.00e-02	ug/mL		03/05/
Sample #: S97P000012 Sample ID: P3766					
Silver-ICP-Acid Dil.	0	2.78e-02	ug/mL		03/05/
Aluminium-ICP-Acid Dil.	0	6.61e-01	ug/mL		03/05/
Alpha in Liquid Samples	0	3.09E-04	uCi/mL		03/04/
Alpha Liq.- Rel. % Count Error	0	2.80E+01	% Ct. Error		03/04/

Wed, Apr 9, 1997 2:45 PM

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: MISC

Sample #: S97P000012 Sample ID: P3766 [Continued]

Parameter	Rep	Result	Unit	%Recov	Date
Am-241 by Extraction	0	2.23E-04	uCi/mL		03/09/
Am-241 Rel. % Count Error	0	2.02E+00	% Ct. Error		03/09/
Am-243 Tracer for Am241 Method	0	1.02E+02	% Recovery		03/09/
Appearance of Sample-Smpl Prep	0	complete			02/28/
Arsenic-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Boron-ICP-Acid Dil.	0	7.32e-02	ug/mL		03/05/
Barium-ICP-Acid Dil.	0	1.08e-01	ug/mL		03/05/
Beryllium-ICP-Acid Dil.	0	< 5.00e-03	ug/mL		03/05/
Beta in Liquid Samples	0	7.83E-01	uCi/mL		03/04/
Beta Liq.- Rel. % Count Error	0	4.11E-01	% Ct. Error		03/04/
Bismuth-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Bismuth-214 by GEA	0	< 5.545e-04	uCi/mL		03/04/
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		03/04/
Bromide by Ion Chromatograph	0	< 2.512e+01	ug/mL		03/09/
Caustic Ratio	0	6.25e-2	lbs NaOH/gal		03/23/
C-14 Small Volume	0	< 2.28E-06	uCi/mL		03/21/
C-14, Rel.% Count Error	0	4.03E+00	% Ct. Error		03/21/
Calcium-ICP-Acid Dil.	0	2.09e+02	ug/mL		03/05/
Cadmium-ICP-Acid Dil.	0	1.32e-01	ug/mL		03/05/
Cerium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Chloride-IC-Dionex 4000/4500	0	1.627e+01	ug/mL		03/09/
Cyanide Water Distillation	0	<1.10e-2	ug/mL		04/08/
Cobalt-ICP-Acid Dil.	0	3.14e-02	ug/mL		03/05/
Cobalt-60 by GEA	0	8.490e-05	uCi/mL		03/04/
Co-60 GEA Rel. % Count Error	0	32.0	% Ct. Error		03/04/
Chromium-ICP-Acid Dil.	0	2.54e-02	ug/mL		03/05
Cesium-137 by GEA	0	3.290e-01	uCi/mL		03/04
Cs-137 GEA Rel. % Count Error	0	0.530	% Ct. Error		03/04
Copper-ICP-Acid Dil.	0	8.59e-02	ug/mL		03/05
Dose Rate in mrad/hour	0	27	mrad/hour		02/28
DSC Exotherm on Perkin Elmer	0	0	Joules/g		03/04
Europium-154 by GEA	0	< 1.574e-04	uCi/mL		03/04
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		03/04
Fluoride-IC-Dionex 4000/4500	0	1.122e+01	ug/mL		03/09
Iron-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05
Tritium By Lachat	0	8.33E-06	uCi/mL		03/13
H3 - Rel. % Count Error	0	5.39E+00	% Ct. Error		03/13
Iodine-129 Waste Tank Samples	0	< 1.24E-05	uCi/mL		03/24
I-129 % Carrier Recovery	0	5.77E+01	% Recovery		03/24
I-129 Rel. % Count Error	0	0.00E+00	% Ct. Error		03/24
Potassium-ICP-Acid Dil.	0	1.18e+01	ug/mL		03/05
Lanthanum-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05
Lithium-ICP-Acid Dil.	0	1.11e-02	ug/mL		03/05
Magnesium-ICP-Acid Dil.	0	1.42e+01	ug/mL		03/05
Manganese-ICP-Acid Dil.	0	1.45e+00	ug/mL		03/05
Molybdenum-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05
Sodium-ICP-Acid Dil.	0	2.26e+02	ug/mL		03/05
Neodymium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05
Ammonia by ISE-Std Additions	0	1.29E+03	ug/mL		04/0
Nickel-ICP-Acid Dil.	0	2.64e-01	ug/mL		03/0

Wed, Apr 9, 1997 2:45 PM

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: MISC

Parameter	Rep	Result	Unit	%Recov	Date
Sample #: S97P000012 Sample ID: P3766 [Continued]					
Nitrite-IC - Dionex 4000/4500	0	< 2.19e1	ug/mL		03/23/
Nitrate by IC-Dionex 4000/4500	0	7.131e+03	ug/mL		03/09/
OH- by Pot. Titration	0	<125	ug/mL		03/22/
Caustic Demand	0	< 1.47e-1	moles OH-/L		04/01/
Oxalate by IC-Dionex 4000/4500	0	< 2.111e+01	ug/mL		03/09/
Phosphorus-ICP-Acid Dil.	0	8.47e-01	ug/mL		03/05/
Lead-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
pH Direct	0	7.02	pH		03/04/
Phosphate-IC-Dionex 4000/4500	0	< 2.412e+01	ug/mL		03/09/
Pu-238 by Ion Exchange	0	< 1.36E-05	uCi/mL		03/09/
Pu-238 Relative % Counting Err	0	9.05E+00	% Ct. Error		03/09/
Pu-239/240 by TRU-SPEC Resin	0	1.54E-05	uCi/mL		03/09/
Pu239 Relative % Count Error	0	4.96E+00	% Ct. Error		03/09/
Pu-236 Tracer % Recovery	0	9.20E+01	% Recovery		03/09/
Sulfur-ICP-Acid Dil.	0	1.68e+01	ug/mL		03/05/
Amt of Sam/Present sample prep	0	125	mL		02/28/
Antimony-ICP-Acid Dil.	0	< 6.00e-02	ug/mL		03/05/
Selenium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Silicon-ICP-Acid Dil.	0	5.01e+00	ug/mL		03/05/
Samarium-ICP-Acid Dil.	0	< 1.00e-01	ug/mL		03/05/
Sulfate by IC-Dionex 4000/4500	0	1.16e2	ug/mL		03/23/
Strontium-ICP-Acid Dil.	0	1.30e+00	ug/mL		03/05/
Strontium-89/90 High Level	0	2.84E-01	uCi/mL		03/13/
Sr-89/90 Carrier Recovery	0	9.38E+01	% Recovery		03/13/
Sr-89/90 Rel. % Count Error	0	8.15E-01	% Ct. Error		03/13/
Technetium-99 Liq. Scint.	0	1.04E-04	uCi/mL		03/08/
Tc-99 Rel. % Count Error	0	7.77E+00	% Ct. Error		03/08/
Tc-99 Tracer % Recovery	0	3.79E+01	% Recovery		03/08/
% Water by TGA on Perkin Elmer	0	98.69	%		03/04/
Titanium-ICP-Acid Dil.	0	< 1.00e-02	ug/mL		03/05/
TIC by Acid/Coulometry	0	2.61E+01	ug/mL		04/07/
Thallium-ICP-Acid Dil.	0	< 2.00e-01	ug/mL		03/05/
TOC by Persulfate/Coulometry	0	< 4.00E+01	ug/mL		04/07/
Uranium by Phosphorescence	0	3.89E+01	ug/mL		03/29/
U-Phosphorescence Inst. Error	0	3.06E+00	% Inst Error		03/29/
Uranium-ICP-Acid Dil.	0	4.42e+01	ug/mL		03/05/
Uranium-235 by GEA	0	< 4.106e-04	uCi/mL		03/04/
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		03/04/
Vanadium-ICP-Acid Dil.	0	< 5.00e-02	ug/mL		03/05/
Zinc-ICP-Acid Dil.	0	3.03e-01	ug/mL		03/05/
Zirconium-ICP-Acid Dil.	0	< 1.00e-02	ug/mL		03/05/