W1056-QES-535

(3)

0045358

Analytical Data Package Prepared For

Westhinghouse Hanford

Chemical Analysis By

Quanterra Environmental Services

Sample Delivery Group Number: W01075

NOV 1996
RECEIVED
SDLA

WHC IDENTIFICATION NUMBER	QUANTERRA ID NUMBER
Hg Reanalysis Data Package cw.	
B0HX42	11452-001
B0HX43	11452-002

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SEP 1996
RECEIVED
LDMC

COPY

Quanterra
Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 30, 1996

Attention: Karl Pool

Project number	:	519.136
Date Received by Lab	:	June 25, 1996
Number of Samples	:	Two (2)
Sample Type	:	Liquid
SDG Number	:	W01075
Data Deliverable	:	Summary

I. Introduction

On June 25, 1996, two (2) liquid samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. On July 16, 1996, additional Mercury analyses were requested on these samples. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
11452-001	B0HX42	60632401	Liquid	6/25/96
11452-002	B0HX43	60632402	Liquid	6/25/96

The results of the original analyses can be found with SDG W01056. This report contains only the results for the Mercury reanalysis.

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: Mercury by EPA method 7470.

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III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate and/or Sample Duplicate analyses were performed per the protocol for each analyte. pH analysis uses only Sample Duplicate for matrix QC.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

Shipping and Receiving
The chain of custody arrived at the laboratory stating the sampling date as 4/17/96 making the samples out of holding time. Per ROD-96-0044, the samples true sampling date is 6/17/96 and the samples were not out of holding time. This ROD supercedes ROD-96-0035.

Mercury
There are no comments or nonconformances associated with this analysis.

Quanterra
Environmental Services

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I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
Quanterra Environmental Services, Inc.
e:\\sqtlmo01\price$\abbydave\hanford\hanw1075.nar

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SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

ROD-96-0039
Record of Disposition No.

DATE: July 16, 1996

LABORATORY: Quanterra

PROJECT TITLE/SAF #: PUREX Vessels' Flush Solutions/96-016

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42, B0HX43

DESCRIPTION OF EVENT: The customer has requested the Mercury for the above listed samples be rerun with a detection limit of less than 0.20 mg/Kg. The customer has requested the reruns be on a Priority turnaround.

DISPOSITION OF SAMPLES: Quanterra is to rerun the Mercury for the above listed samples within the three business day priority data turnaround requirement. Quanterra can run the samples with a detection limit of less than 0.20 mg/Kg.

APPROVAL SIGNATURES:

S.M.Steele — July 16, 1996
SDLA Project Coordinator (Print/Sign Name) — Date

C.N.Villalobos — 8-6-96
Technical Representative (Print/Sign Name) — Date

CCC03R

519.136 WC1056

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

Rec'd 7-10-96

ROD-96-0035
Record of Disposition No.
Rev. 1

DATE: July 9, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: PUREX Vessels' Flush Solutions/96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42, B0HX43

DESCRIPTION OF EVENT: The Chain of Custody for the above listed samples showed the samples were taken on 4/17/96. The samples arrived at Quanterra on 6/28/96. The difference in time from sampling to receipt at the lab exceeds the 14 day holding time for VOA by Method 8240, and the 28 day holding time for both Mercury by Method 7470 and TOC by Method 9060.

DISPOSITION OF SAMPLES: The 4/17/96 date on the Chain of Custody was incorect. The samples were actually collected on 6/17/96. The holding times for the samples were not missed. Quanterra is to analyze the samples as received and note the discrepancy in the narrative.

DRAFT

APPROVAL SIGNATURES:

S.M.Steele — July 9, 1996
SDLA Project Coordinator (Print/Sign Name) — Date

C.N.Villalobos
Technical Representative (Print/Sign Name) — Date

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Quanterra June 26, 1996 03:22 pm
Account: 10722 Project: 519.136 Quanterra-Richland QAS No. 861 Rev. 1
Master Sample Login: 11452

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / #	Client ID / Container Type	C-Matrix / Analysis	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No. (Container Numbers:% Filled)
Comments / Data:								
11452-001	BOHX42	Liquid	17-APR-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
1	VI - Vial-40ml	PH/9040/Q4	S COLD	02-JUL-96	18-APR-96	R16D		(236686:99)
1		TOC/9060/Q4	S COLD	02-JUL-96	15-MAY-96	R16D		(236687:98)
2		VOA/8240/Q4	S COLD	02-JUL-96	01-MAY-96	109I		(236684:100 236685:100)
1	AN - Amber Glass-1L	AS/7060/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		HG/7470/Q4	S COLD	02-JUL-96	15-MAY-96	R16D		(236688:100)
1		ICAP/6010/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		PB/7421/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		SE/7740/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1	VI - Vial-20ml	HOLD//Q4	S COLD	11-&&&-**	11-&&&-**	R16D		(236695:80)
11452-001DUP	BOHX42	Liquid	17-APR-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
1	VI - Vial-40ml	PH/9040/Q4	S COLD	02-JUL-96	18-APR-96	R16D		(236686:99)
1		TOC/9060/Q4	S COLD	02-JUL-96	15-MAY-96	R16D		(236687:98)
11452-001MS	BOHX42	Liquid	17-APR-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
1	VI - Vial-40ml	TOC/9060/Q4	S COLD	02-JUL-96	15-MAY-96	R16D		(236687:98)
2		VOA/8240/Q4	S COLD	02-JUL-96	01-MAY-96	109I		(236684:100 236685:100)
1	AN - Amber Glass-1L	AS/7060/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		HG/7470/Q4	S COLD	02-JUL-96	15-MAY-96	R16D		(236688:100)
1		ICAP/6010/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		PB/7421/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		SE/7740/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
11452-001MSD	BOHX42	Liquid	17-APR-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
2	VI - Vial-40ml	VOA/8240/Q4	S COLD	02-JUL-96	01-MAY-96	109I		(236684:100 236685:100)
1	AN - Amber Glass-1L	AS/7060/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		HG/7470/Q4	S COLD	02-JUL-96	15-MAY-96	R16D		(236688:100)
1		ICAP/6010/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		PB/7421/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
1		SE/7740/Q4	S COLD	02-JUL-96	14-OCT-96	R16D		(236688:100)
11452-002	BOHX43	Liquid	17-APR-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	3	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632402								

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3*=Sample has not been rad screened.

Quanterra June 26, 1996 03:22 pm
Account: 10722 Project: 519.136 Quanterra-Richland QAS No. 861 Rev. 1
Master Sample Login: 11452

Project Manager: W. Price

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Comments Data:								
1	VI - Vial-40ml	PH/9040/Q4	S	COLD	02-JUL-96	18-APR-96	R16D	(236691:99)
1		TOC/9060/Q4	S	COLD	02-JUL-96	15-MAY-96	R16D	(236692:98)
2		VOA/8240/Q4	S	COLD	02-JUL-96	01-MAY-96	1091	(236689:100 236690:100)
1	AN - Amber Glass-1L	AS/7060/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1		HG/7470/Q4	S	COLD	02-JUL-96	15-MAY-96	R16D	(236693:100)
1		ICAP/6010/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1		PB/7421/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1		SE/7740/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1	VI - Vial-20ml	HOLD//Q4	S	COLD	11-&&&-**	11-&&&-**	R16D	(236694:80)

00005

3*=Sample has not been rad screened.

Temp 2c Cux# 1492

Chain of Custody Record

Go St Louis

Quanterra Environmental Services

QUA-4124-1

Client: Westinghouse	Project Manager: Van Putney	Date: 6-25-96	Chain Of Custody Number: 54400
Address:	Telephone Number (Area Code)/Fax Number:	Lab Number:	Page 1 of 1
City: / State: / Zip Code:	Site Contact:	Lab Contact:	
Project Name: SAF 96-016	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed): SEE COC

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
60632401 BOHX42	Chemical bottles only											
↓ 02 ↓ X43												

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal: ☑ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other Due 7-10-96

QC Requirements (Specify): SDG W01056

	Date	Time		Date	Time
1. Relinquished By: Hudelberg Quanterra	6-25-96	16:00	1. Received By: Fred M Stiel	6-26-96	09:00
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

00006

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C # 100204
		Page 1 of 1

Collector HULSE, KARL	Contact/Requestor VILLALOBOS, CARMEN	Tel. No. 373-4753 MSIN S6-19 FAX
SAF Number 96-016	Sample Origin PUREX	Purchase Order/Charge Code
Project Title PUREX Vessels Flush Solutions	Logbook # WHC-N-205	Ice Chest # Temp.
Shipped To (Lab) Quanterra	Method of Shipment Gov. Vehicle	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround PRIORITY	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Perservative
B0HX42		L	4/17/96	1400	(1) 20 P	ACTIVITY SCAN (Lab Specific) 80%	None
B0HX42		L	4/17/96	1400	(1) 1000 aG	ICP Metals, TAL (6010) plus, Lead 97421), Arsenic (7060), Selenium (7740), Mercury (7470) 75%	Cool to 4°C
B0HX42		L	4/17/96	1400	(1) 40 aGs	pH (9040) 100%	None
B0HX42		L	4/17/96	1400	(1) 40 aGs	TOC (9060) 60063240 1 100%	Cool to 4°C
B0HX42		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B0HX42		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 20 P	ACTIVITY SCAN (Lab Specific) 80%	None
B0HX43		L	4/17/96	1400	(1) 1000 aG	ICP Metals, TAL (6010) plus, Lead (7421), Arsenic (7060), Selenium (7740), Mercury (7470) 250 ml N/A 25%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 40 aGs	pH (9040) 100%	None
B0HX43		L	4/17/96	1400	(1) 40 aGs	TOC (9060) 60063240 2 100%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C

Lab Tech 1 of 1 pg

20000 cm²

Not Copy

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☒

List all known wastes. B0HX42 ICP Metals 1L Bottle contains only about 250 ml. This was all sample that could be obtained

SPECIAL INSTRUCTIONS Hold Time

Priority Turnaround Summary Data Deliv

PRIORITY TURNAROUND

SDG-W01056

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB Hulse		KB Hulse	6/25/96 0730	K.J. Yang		K.J. Yang	6/25/96 0730
K.J. Yang	K.J. Yang	WHC.	6/25/96 1005	Karen Attenburg		Karen Attenburg	6-25-96 1005
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6001-500 (07/95)

00007

Client Sample Screening Results

25-Jun-96

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
WHC B0HX42		6/25/1996 10:00:00 AM	QUAD21A	6/25/1996 1:29:32 PM	B0HX42	30	5	0.10541667	147	3.9875
	LIQUID		Bkg:	6/25/1996 4:05:51 AM	BKG	800	49	0.06125	730	0.9125

Anl Date: 6/25/1996 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 1.75E-01 (uCi/ 7.88E-06 (pCi/ 7.88E+00 ± 2.0E+01 CAT I 3.2E+00 Lab
Ppt mg: 0 Units: L , ml Bet; Alq): 7.88E+00 Sa): 3.55E-04 Lig): 3.55E+02 ± 3.6E+01 1.4E-01 Alq Lig

WHC B0HX43		6/25/1996 10:00:00 AM	QUAD21B	6/25/1996 1:20:00 PM	B0HX43	20.01	16998	849.430262	1186811	59309.957
	LIQUID		Bkg:	6/25/1996 4:05:51 AM	BKG	800	36	0.045	750	0.9375

Anl Date: 6/25/1996 Tot Sa, Alq: 2.50E-01 , 1.00E+00 Alp; (Dpm/ 7.99E+02 (uCi/ 9.00E-02 (pCi/ 3.60E+05 ± 4.7E+03 CAT III 6.9E-05 Lab
Ppt mg: 8.6 Units: L , ml Bet; Alq): 1.16E+05 Sa): 1.31E+01 Lig): 5.22E+07 ± 4.8E+04 9.6E-07 Alq Lig

Reviewed 6/25/96

80030

Soil/Solid Samples

Sample # BOHX43					Total Grams per sample	430		
isotope	A_2 in GBq	pCi/G	Bq/G	KBq/G	KBq/ sample	µCi/ sample	Ltd Qty Value in MBq	Unity for Ltd Qty
Total Alpha	.002	745	27.5650	0.0276	11.8530	0.3204	0.0020	0.6000
Toatl Beta	20	43100	1,594.7000	1.5947	685.7210	18.5330	20.0000	0.0034
Cs-137	500	21300	788.1000	0.7881	338.8830	9.1590	500.0000	0.0001
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
TOTAL		65,145.00	2,410.3650	2.4104	1,036.4570	28.0124		0.6035

00009

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000086 Sample ID: BOHX42

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Actinium-228 by GEA	0	< 1.224e-04	uCi/mL		06/18/96	eal
Ac-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Alpha in Liquid Samples	0	4.21E-07	uCi/mL		06/19/96	dgg
Alpha Liq.- Rel. % Count Error	0	1.21E+02	% Ct. Error		06/19/96	dgg
Americium-241 by GEA	0	< 1.622e-04	uCi/mL		06/18/96	eal
Am-241 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Americium-243 by GEA	0	< 4.138e-05	uCi/mL		06/18/96	eal
Am-243 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Beta in Liquid Samples	0	< 1.69E-06	uCi/mL		06/19/96	dgg
Beta Liq.- Rel. % Count Error	0	5.00E+02	% Ct. Error		06/19/96	dgg
Bismuth-212 by GEA	0	< 3.275e-04	uCi/mL		06/18/96	eal
Bi-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Bismuth-214 by GEA	0	< 6.584e-05	uCi/mL		06/18/96	eal
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Cadmium-109 by GEA	0	< 4.668e-04	uCi/mL		06/18/96	eal
Cd-109 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ce/Pr-144 by GEA	0	< 2.177e-04	uCi/mL		06/18/96	eal
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-56 by GEA	0	< 2.360e-05	uCi/mL		06/18/96	eal
Co-56 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-57 by GEA	0	< 1.493e-05	uCi/mL		06/18/96	eal
Co-57 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-60 by GEA	0	< 2.394e-05	uCi/mL		06/18/96	eal
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-134 by GEA	0	< 2.191e-05	uCi/mL		06/18/96	eal
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-137 by GEA	0	< 6.041e-05	uCi/mL		06/18/96	eal
Cs-137 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Europium-152 by GEA	0	< 9.094e-05	uCi/mL		06/18/96	eal
Eu-152 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-154 by GEA	0	< 7.154e-05	uCi/mL		06/18/96	eal
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-155 by GEA	0	< 6.082e-05	uCi/mL		06/18/96	eal
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Mercury-203 by GEA	0	< 1.921e-05	uCi/mL		06/18/96	eal
Hg-203 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Iodine-131 by GEA	0	< 2.436e-05	uCi/mL		06/18/96	eal
I-131 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Potassium-40 by GEA	0	< 9.284e-04	uCi/mL		06/18/96	eal
K-40 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-22 by GEA	0	< 2.457e-05	uCi/mL		06/18/96	eal
Na-22 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-24 by GEA	0	< 1.656e-05	uCi/mL		06/18/96	eal
Na-24 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Niobium-94 by GEA	0	< 2.041e-05	uCi/mL		06/18/96	eal
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-237 by GEA	0	< 1.476e-04	uCi/mL		06/18/96	eal
Np-237 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-239 by GEA	0	< 5.683e-05	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Sample #: S96P000086 Sample ID: BOHX42 [Continued]						
Np-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-233 by GEA	0	< 4.734e-05	uCi/mL		06/18/96	eal
Pa-233 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-234m by GEA	0	< 3.441e-05	uCi/mL		06/18/96	eal
Pa-234m GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-212 by GEA	0	< 4.486e-05	uCi/mL		06/18/96	eal
Pb-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-214 by GEA	0	< 1.149e-04	uCi/mL		06/18/96	eal
Pb-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Plutonium-239 by GEA	0	< 1.919e-01	uCi/mL		06/18/96	eal
Pu-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-224 by GEA	0	< 4.621e-04	uCi/mL		06/18/96	eal
Ra-224 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-226 by GEA	0	< 4.274e-04	uCi/mL		06/18/96	eal
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ruthenium-103 by GEA	0	< 2.045e-05	uCi/mL		06/18/96	eal
Ru-103 GEA Rel % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Ru/Rh-106 by GEA	0	< 4.328e-04	uCi/mL		06/18/96	eal
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Selenium-75 by GEA	0	< 3.023e-05	uCi/mL		06/18/96	eal
Se-75 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Tin-113 by GEA	0	< 3.434e-05	uCi/mL		06/18/96	eal
Sn-113 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Strontium-85 by GEA	0	< 2.613e-05	uCi/mL		06/18/96	eal
Sr-85 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Thorium-228 by GEA	0	< 1.576e-03	uCi/mL		06/18/96	eal
Th-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-229 by GEA	0	< 6.639e-05	uCi/mL		06/18/96	eal
Th-229 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-234 by GEA	0	< 8.867e-04	uCi/mL		06/18/96	eal
Th-234 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thallium-208 by GEA	0	< 2.802e-04	uCi/mL		06/18/96	eal
Tl-208 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium/Thorium-233 by GEA	0	< 1.489e-02	uCi/mL		06/18/96	eal
U/Th-233 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium-235 by GEA	0	< 2.622e-05	uCi/mL		06/18/96	eal
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Yttrium-88 by GEA	0	< 2.565e-05	uCi/mL		06/18/96	eal
Y-88 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Zr/Nb-95 by GEA	0	< 3.938e-05	uCi/mL		06/18/96	eal
Zr/Nb-95 GEA Rel % Count. Err	0	n/a	% Ct. Error		06/18/96	eal
Sample #: S96P000087 Sample ID: BOHX43						
Actinium-228 by GEA	0	< 1.002e-04	uCi/mL		06/18/96	eal
Ac-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Alpha in Liquid Samples	0	7.45E-04	uCi/mL 7.45×10^{-2}		06/19/96	dgg
Alpha Liq.- Rel. % Count Error	0	2.74E+00	% Ct. Error		06/19/96	dgg
Americium-241 by GEA	0	< 4.394e-04	uCi/mL		06/18/96	eal
Am-241 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Americium-243 by GEA	0	< 1.025e-04	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Sample #: S96P000087 Sample ID: BOHX43 [Continued]						
Am-243 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Beta in Liquid Samples	0	6.44E-02	uCi/mL	4.31x10⁴	06/19/96	dgg
Beta Liq.- Rel. % Count Error	0	2.07E-01	% Ct. Error		06/19/96	dgg
Bismuth-212 by GEA	0	< 3.750e-04	uCi/mL		06/18/96	eal
Bi-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Bismuth-214 by GEA	0	< 1.136e-04	uCi/mL		06/18/96	eal
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Cadmium-109 by GEA	0	< 1.228e-03	uCi/mL		06/18/96	eal
Cd-109 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ce/Pr-144 by GEA	0	< 6.107e-04	uCi/mL		06/18/96	eal
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-56 by GEA	0	< 2.349e-05	uCi/mL		06/18/96	eal
Co-56 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-57 by GEA	0	< 4.042e-05	uCi/mL		06/18/96	eal
Co-57 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-60 by GEA	0	< 2.871e-05	uCi/mL		06/18/96	eal
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-134 by GEA	0	< 4.758e-05	uCi/mL		06/18/96	eal
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-137 by GEA	0	2.130e-02	uCi/mL	2.13x10⁴	06/18/96	eal
Cs-137 GEA Rel. % Count Error	0	1.50	% Ct. Error		06/18/96	eal
Europium-152 by GEA	0	< 8.134e-05	uCi/mL		06/18/96	eal
Eu-152 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-154 by GEA	0	< 5.834e-05	uCi/mL		06/18/96	eal
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-155 by GEA	0	< 1.677e-04	uCi/mL		06/18/96	eal
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Mercury-203 by GEA	0	< 6.201e-05	uCi/mL		06/18/96	eal
Hg-203 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Iodine-131 by GEA	0	< 7.454e-05	uCi/mL		06/18/96	eal
I-131 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Potassium-40 by GEA	0	< 8.997e-04	uCi/mL		06/18/96	eal
K-40 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-22 by GEA	0	< 2.014e-05	uCi/mL		06/18/96	eal
Na-22 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-24 by GEA	0	< 1.982e-05	uCi/mL		06/18/96	eal
Na-24 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Niobium-94 by GEA	0	< 2.271e-05	uCi/mL		06/18/96	eal
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-237 by GEA	0	< 3.743e-04	uCi/mL		06/18/96	eal
Np-237 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-239 by GEA	0	< 1.577e-04	uCi/mL		06/18/96	eal
Np-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-233 by GEA	0	< 1.389e-04	uCi/mL		06/18/96	eal
Pa-233 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-234m by GEA	0	< 5.306e-05	uCi/mL		06/18/96	eal
Pa-234m GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-212 by GEA	0	< 1.164e-04	uCi/mL		06/18/96	eal
Pb-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-214 by GEA	0	< 3.021e-04	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000087 Sample ID: BOHX43 [Continued]

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Pb-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Plutonium-239 by GEA	0	< 5.575e-01	uCi/mL		06/18/96	eal
Pu-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-224 by GEA	0	< 1.290e-03	uCi/mL		06/18/96	eal
Ra-224 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-226 by GEA	0	< 1.278e-03	uCi/mL		06/18/96	eal
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ruthenium-103 by GEA	0	< 6.930e-05	uCi/mL		06/18/96	eal
Ru-103 GEA Rel % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Ru/Rh-106 by GEA	0	< 9.131e-04	uCi/mL		06/18/96	eal
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Selenium-75 by GEA	0	< 8.328e-05	uCi/mL		06/18/96	eal
Se-75 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Tin-113 by GEA	0	< 1.033e-04	uCi/mL		06/18/96	eal
Sn-113 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Strontium-85 by GEA	0	< 6.957e-05	uCi/mL		06/18/96	eal
Sr-85 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Thorium-228 by GEA	0	< 3.910e-03	uCi/mL		06/18/96	eal
Th-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-229 by GEA	0	< 1.781e-04	uCi/mL		06/18/96	eal
Th-229 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-234 by GEA	0	< 2.527e-03	uCi/mL		06/18/96	eal
Th-234 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thallium-208 by GEA	0	< 8.152e-04	uCi/mL		06/18/96	eal
Tl-208 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium/Thorium-233 by GEA	0	< 4.681e-02	uCi/mL		06/18/96	eal
U/Th-233 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium-235 by GEA	0	< 7.793e-05	uCi/mL		06/18/96	eal
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Yttrium-88 by GEA	0	< 1.484e-05	uCi/mL		06/18/96	eal
Y-88 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Zr/Nb-95 by GEA	0	< 5.770e-05	uCi/mL		06/18/96	eal
Zr/Nb-95 GEA Rel % Count. Err	0	n/a	% Ct. Error		06/18/96	eal

RADIOACTIVE SHIPMENT RECORD

3. Page 1 of 1 **33454**

1. SHIP TO
Company: Quanterra
Address: 2800 George Washington Way
City, State, Zip: Richland, WA 99352
Attention: Tami Heidelberg
Phone: 509-375-3131

2. SHIP FROM U.S. DEPT. OF ENERGY C/O
Company: Westinghouse Hanford
Address: 6269 Bldg
City, State, Zip: 200 W
Contact: K.J. Young
Phone: 509-373-7002

4. Ship ☑ Prepaid ☐ Collect
Via: ☑ Motor-Rail ☐ Air Psgr ☐ Excl. Use ☐ Air Cargo ☐ UPS Surface ☐ Mail ☐ Site Carrier
SHIPMENT AUTHORIZATION NUMBER

5. HM Proper Shipping Name: Radioactive Material,

	excepted package - empty packaging	7	UN2910
	excepted package - instruments or articles	7	UN2910
✓	excepted package - limited quantity of material	7	UN2910
	excepted package - articles manufactured from natural or depleted uranium or natural thorium	7	UN2910
	Special Form, n.o.s.	7	UN2974
	Low Specific Activity, n.o.s.	7	UN2912
	n.o.s.	7	UN2982
	Fissile, n.o.s.	7	UN2918
	(other)		

6. Markings Applied
Package Orientation ☑
Gross Weight ☐
Radioactive - LSA ☐
Type A ☐
Type B ☐

7. For Normal Form
Identify
Physical Form: ☑ Liquid ☐ Gas ☐ Solid
Chemical Form: ☐ Metal ☐ Oxide ☐ Elemental ☐ Nitrate
Other: ☑ Mixture

8. Additional RAM Desc.
Limited Quantity Radioactive Material ☑
Highway Route Controlled Quantity ☐

9. Placards Applied ☐ Yes ☑ No
If Rail Specify Placards
Route Plan ☐ Yes ☑ No

11a. TYPE PACKAGE
Strong Tight ☑
Type A ☐
Type B ☐
Type B(U) ☐
Type B(M) ☐

11b. CONSTRUCTION
☐ Box, FB
☐ Wood
☐ Steel
☐ Drum
☐ Cask
Other: Poly Box

11c. FISSILE CLASS
Non-Fissile ☑
Fissile Exempt ☐
Fissile I ☐
Fissile II ☐
Fissile III ☐
Gms Fissile

11d. Labels Applied
Empty ☐
Radioactive White I ☐
Radioactive Yellow II ☐
Radioactive Yellow III ☐
Subsidiary Hazard N/A ☑

10. EMERGENCY RESPONSE
Telephone: (509) 373-3800
Emergency Response Guide(s): #61

Warning – Fissile Class III Shipment. Do Not Load More Than N/A Packages Per Vehicle. In Loading and Stoarge Areas, Keep at Least 20 Feet From Other Packages Bearing Radioactive Labels.

12.

No. Pkgs.	Model Package	COC/Spec	Serial No.	Seal No.	T.I.	Isotopes	Curies/Pkg	Gr. Wt.
1	4HZY	NA	03-95, 040019	Tape	N/A	Cs-137	1036 KBq	45 LBS
	(SAF-# 96-016 sample # BOHX42, BOHX43)							
	COC-# 100204							
(Shipper may describe package in detail on one of the unused lines above)				TOTALS	N/A		1036 KBq	45 LBS

13. This is to certify that the above named materials are properly classified, described packaged, marked and labeled, and are in proper condition for transportation, acording to the applicable federal, state local and international regulations for the transportation of hazardous materials.
Certifier's Signature: On behalf of DOE-RL: Ben Young | Date: 6-25-96 | Organization: Sampling & Mobile Lab | Complete Cost Code (Inc. End Function): KP50F / 8H100

14. Surface Dose Rate of Package: ☒ <0.5 or _____ mrem/hr (N+β γ)
Dose Rate at 1 Meter from Surface of Package: ☒ <0.5 or _____ mrem/hr (N+β γ)
Smears of Outer Container: ☒ <22 dpm β γ/cm² ☒ <2.2 dpm α/cm² ☒ <Tbl. 2-2 HSRCM Limits
TRUCK LOAD OR EXCLUSIVE USE: Surface ☒ <200 mrem/hr (N+β γ); @ 6 feet ☒ <10 mrem/hr (N+β γ); @ Cab or sleeper ☒ <2 mrem/hr (N+β γ)
Additional Data and Instructions (inc. Readings on Internal Packaging)
Signature - Radiation Monitoring: [signature] 6C705 | Bldg. 6269 | Survey No. WS250 1080 | Date 6/25/96

15. AIR TRANSPORT CERTIFICATION
CARGO AIRCRAFT: ☐ Cargo Aircraft Only Labels Applied
PASSENGER AIRCRAFT: ☐ 1. Ltd Qty ☐ 2. <3 T.I. ☐ 3. Research/Medical Diagnosis ☐ 4. Human Medical Research
Pkg. Dimensions: NA
Shipment has been inspected and verified to be in compliance with DOT regulations
Authorized Signature: [signature] | Printed Name: M.A. SAMS | Date 6-25-96

16. PICKUP OF SHIPMENT
Date of Shipment: 6-25-96 | Agent: Ben Young | Driver Signature: Ben Young | Vehicle Number: 4625

17. RECEIPT OF SHIPMENT
Shipment No.: RMW-0067 | Date Shipped: 6-25-96 | Received in Good Order Unless Otherwise Noted | Vehicle Number
Surveyed By | Date Received | Signature | Printed Name

00014

Karen Stettenberg - Quanterra 6-25-96

54-6000-088 (12/94)

"THIS PACKAGE CONFORMS TO THE CONDITIONS AND LIMITATIONS SPECIFIED IN 49 CFR 173.421 FOR RADIOACTIVE MATERIAL"

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 6-25-96 1100 Client Name WHC

Project/Client # 96-016 Batch or Case # _____

Cooler ID (if noted on outside of cooler) SM - 03-95040019

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes [X] No [ ]
3. Custody Seals dated and signed? Yes [X] No [ ]
4. Chain of Custody record is taped on inside of cooler lid? Yes [X] No [ ]
5. Vermiculite/packing material is: Wet [ ] Dry [X] _____
6. Each sample is in a plastic bag? Yes [X] No [ ] _____
7. Number of sample containers in cooler: 12
8. Samples have: X tape ____ hazard labels
   X custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant Present? Yes [X] No [ ] Sample Temperature 4°C
11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #(s) N/A
    Request for Analysis #(s) /
    Airbill # / Carrier N/A
12. Have any anomalies been identified above? Yes [ ] No [X]
13. Memos have been initiated for all anomalies identified above? Yes [X]

Printed Name/Signature _____ Date/Time _____

Quanterra
Environmental Services

RW & WP
6-26-96
13:15
SI: 2m

Login No.: 11452

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Jones Beach
Project No: 519.136
Shipper/No: FedEx 109 2644 761

Date: 6-26-96 Time: 09:00
Initiated by: Fred Mitchell
RFA/COC Numbers: 54400

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☐ pH _____
   - ☐ other: _____
3. ☐ Sample received in improper container.
4. ☐ Sample received without proper paperwork. Explain: _____
5. ☐ Paperwork received without sample.
6. ☐ No sample ID on sample container.
7. ☑ Custody tape disturbed/broken/missing.
8. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
9. ☐ All coolers on airbill not received with shipment.
10. ☐ Other (explain below): _____

☐ No variances were noted during sample receipt. Cooler Temperature Upon Receipt: 2°C

Notes: Activity Scans has seals Broken

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____
☑ Sample(s) processed "as is".
☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) Fred Mitchell Date: 6-26-96
Project Management Review: Jerry Wirt Date: 6-26-96

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 11/24/95

METALS

RECORD COPY

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Mercury
Method: EPA 7470
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	0.10	UG/L	U	0.20	1
BOHX42	11452-001MS	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	106	%REC			1
BOHX42	11452-001MSD	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	107	%REC			1
BOHX43	11452-002	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	4.1	UG/L		0.20	1
NA	QCLCS106918-1	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	110	%REC			1
NA	QCBLK106918-1	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	0.10	UG/L	U	0.20	1

RECORD COPY

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0HX42

Lab Name: QUANTERRA MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01075

Matrix (soil/water): WATER Lab Sample ID: 11452-001

Level (low/med): LOW Date Received: 06/25/96

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.10	U		CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

U.S. EPA - CLP

RECORD COPY

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0HX43

Lab Name: QUANTERRA MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01075

Matrix (soil/water): WATER Lab Sample ID: 11452-002

Level (low/med): LOW Date Received: 06/25/96

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	4.1			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: QUANTERRA_MO_____ Contract: 519.136___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W01075_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Mercury	0.1	U	0.1	U	0.1	U			0.100	U	CV

FORM III - IN

SW-846

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B0HX42S

Lab Name: QUANTERRA_MO_____ Contract: 519.136___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W01075_____

Matrix (soil/water): WATER_ Level (low/med): LOW___

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury__	80-120_	1.0600_		0.1000	U	1.00	106.0		CV

Comments:

FORM V (Part 1) - IN SW-846

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B0HX42SD

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01075

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	1.0700		0.1000	U	1.00	107.0		CV

Comments:

FORM V (Part 1) - IN SW-846

U.S. EPA - CLP

6A
MATRIX SPIKE DUPLICATES

EPA SAMPLE NO.

B0HX42S

Lab Name: QUANTERRA MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01075

Matrix (soil/water): WATER Level (low/med): LOW

% Solids: 0.0

Percent recoveries:

Analyte	Control Limit	Matrix Spike (S)		Matrix Spike Duplicate (SD)		RPD	Q	M
Hg	20%	106.00		107.00		0.9		CV

FORM VI - IN
U.S. EPA - CLP

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01075

Solid LCS Source:

Aqueous LCS Source: SOL+/CHEMPUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Mercury	5.0	5.52	110.4						

FORM VII - IN

SW-846

W1056-QZS-535
(2)

August 9, 1996

Karl Pool
Buyer's Technical Representative
Westinghouse Hanford
P.O. Box 1970
2355 Stevens Drive
Richland, WA 99352

AUG 1996
RECEIVED
SDLA

Reference: Contract MPV-SVV-239000.

Dear Mr. Pool:

Accompanying this letter are the Data Package Deliverable for chemical analysis on the following WHC samples:

SDG NUMBER	SAF NUMBER
W01056	96-016

If you have any questions regarding this data package or require any additional information please contact me at 375-3131.

Sincerely,

Jodie Carnes
Document Control Officer

Receipt of this letter and the packages are acknowledged by:

Sandra K Wells 8-9-96 3:50
Name Date Time

XC: Vicki Parr
Wade Price
Van Pettey File

Analytical Data Package Prepared For

Westinghouse Hanford

Chemical Analysis By

St. Louis Laboratory
Quanterra Enviromental Services

Sample Delivery Group Number: W01056

AUG 1996
RECEIVED
SDLA

WHC IDENTIFICATION NUMBER	QUANTERRA ID NUMBER
B0HX42	11452-001
B0HX43	11452-002

RECORD COPY

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

July 12, 1996

Attention: Karl Pool

Project number	:	519.136
Date Received by Lab	:	June 25, 1996
Number of Samples	:	Two (2)
Sample Type	:	Liquid
SDG Number	:	W01056
Data Deliverable	:	Summary

I. Introduction

On June 25, 1996, two (2) liquid samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
11452-001	B0HX42	60632401	Liquid	6/25/96
11452-002	B0HX43	60632402	Liquid	6/25/96

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: pH by EPA method 9040. TOC by EPA method 9060. VOA by EPA method 8240. TAL ICP Metals by EPA method 6010. Arsenic by EPA method 7060. Lead by EPA method 7421. Selenium by EPA method 7740. Mercury by EPA method 7470.

III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate and/or Sample Duplicate analyses were performed per the protocol for each analyte. pH analysis uses only Sample Duplicate for matrix QC.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

Shipping and Receiving
The chain of custody arrived at the laboratory stating the sampling date as 4/17/96 making the samples out of holding time. Per ROD-96-0044, the samples true sampling date is 6/17/96 and the samples were not out of holding time. This ROD supercedes ROD-96-0035.

General Reporting
The results are reported in mg/L for the TOC analysis and mg/kg or ug/kg for all other analyses due to sample matrix. The Density of both samples was determined to be 1.00 g/ml. This value can be used to convert each result to the desired units.

Volatiles
There are no comments or nonconformances associated with this analysis.

CCCC ?

Quanterra
Environmental Services

Metals
The matrix spike recovery in sample 11452-001 was outside the 80-120% limit for lead (137.5%) with an Relative Percent Difference for the Matrix Spike/Matrix Spike Difference of 39.4%. The associated data for lead was flagged with an "N".

Percent solids was not determined for the samples in SDG W01056. Due to software configuration, the CLP forms list solid sample result units as " dry weight" and % solids as " 100 ". The results on the forms are actually mg/Kg as is and are not corrected for percent solids. The figure of 100 was used as percent solids for calculation purposes only and does not represent measured solids content of the samples.

Wet Chemistry
The Relative Percent Difference could not be calculated for the TOC analysis due to the sample concentrations being below the detection limit.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
Quanterra Environmental Services, Inc.
e:\\sqlmo01\price$\abbydave\hanford\hanw1056.nar

W01056

LOG #: 2790

LABORATORY NONCONFORMANCE MEMO (NCM)

Quanterra Incorporated

Project ID/Client: 519.136

NCM Initiated by/Date: WHP 6/28/96 Project Manager: Will Price

Sample Numbers/QC batch or lot numbers: 11452-001, 11452-002

Tests: Hg, TOC, VOA-8260

Revised WHP 8/15/96 See corrective action Notes

Analytical Area (check appropriate area):

- ☐ Sample control
- ☐ Organic preparation
- ☐ Inorganic preparation
- ☐ GC
- ☐ HPLC
- ☒ GC/MS
- ☒ Wet chemistry
- ☒ Metals
- ☐ Reporting
- ☐ Data review
- ☐ Radiochemistry
- ☐ _____

Nonconformance (check appropriate area): *To be completed by analyst*

Holding Time Violations (exceeded by 42, 42, 56 days)

Category I: Laboratory Independent

- ☒ 1. Holding time expired in transit
- ☐ 2. Sample rec'd > 48 hrs after sampling, or ½ holding time has expired
- ☐ 3. Test added by client after expiration

Category II: Laboratory Dependent

- ☐ 4. Instrument failure
- ☐ 5. Analyst error
- ☐ 6. Log-in error
- ☐ 7. Miscommunication
- ☐ 8. Other (explanation required)_____

Category III: Analysis Reruns (QA/QC)

- ☐ 9. Surrogates
- ☐ 10. Internal standards
- ☐ 11. Spike recoveries
- ☐ 12. Blank contamination

Category IV: Analysis Reruns (Confirmation)

- ☐ 13. Second column
- ☐ 14. Contamination check
- ☐ 15. Confirmation of matrix effects
- ☐ 16. Other (explanation required)_____

Category V: Analysis Reruns (Dilution)

- ☐ 17. Over calibration
- ☐ 18. Under calibration
- ☐ 19. Other (explanation required)_____

Quality Assurance/Quality Control

- ☐ 20. QC data reported outside of controls
- ☐ 21. Incorrect procedure used
- ☐ 22. SOP intentionally modified with QA and tech approval
- ☐ 23. Invalid instrument calibration
- ☐ 24. Received insufficient sample for proper analysis

Incorrect or Incomplete Client Deliverable

- ☐ 25. Hardcopy deliverable error
- ☐ 26. Electronic deliverable error

Reported Detection Limits Elevated Due to:

- ☐ 27. Sample matrix: Does not include high analyte content
- ☐ 28. Insufficient sample volume
- ☐ 29. Other (explanation required)

Miscellaneous

- ☐ 30. Instrument/equipment Tag-out
- ☐ 31. Other (explanation required)

Notification (check appropriate area): ☒ Required ☐ Not Required *To be completed by project manager*

Client notified by (name and date): WHP 6/28/96

- ☒ In writing JRP
- ☐ By telephone
- ☐ By facsimile
- ☐ Other (explain)

Client's name and response: _____

- ☐ Process "as is"
- ☐ Re-sample
- ☐ On hold until _____
- ☐ Other (explain)

Project manager (signature and date): _____

00015

QUANTERRA LABORATORY NONCONFORMANCE MEMO

LOG #: 2770

Corrective Action: *To be completed and reviewed by all associates involved*

Problem Description/Root Cause Author's initials and date: WKP 6/28/96

Samples received with expired holding times

Corrective Actions (Short Term) Author's initials and date:

~~none~~ WKP 8/15/96

Per client document ROD-96-044; the sampling date was incorrectly noted on the client COC. No holding times were missed. This NCM is VOID.

Corrective Actions to Prevent Reoccurrence (Long Term)

none

Corrective Action approved by (Supervisor/Group Leader) and date:

Additional Comments:

Corrective Action to be completed by (if other than Supervisor/Group Leader):

Date Corrective Action is to be completed:

Quality Assurance Review *To be completed by a QA associate*

☑ Anomaly ☐ Deficiency ☐ Notified Ops/Sys Manager (Initials)

☐ Further action required:

Further action assigned to:

QA signature: Date: 6-28-96

Corrective Action Verification: *To be completed by a QA associate*

☑ Verification not required or requested

☐ Verified / CA completed on: by

☐ Cannot verify (specify reason)

Verified by: Date:

Nonconformance Memo Closure:

QA signature: Date: 7-2-96

The Office of Quality Assurance maintains a copy of this NCM indicating its final status.

00006

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

ROD-96-0044
Record of Disposition No.

DATE: August 7, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: 96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42 and B0HX43

DESCRIPTION OF EVENT:

The chain of custody (COC) that was sent with the samples incorrectly listed the sampling date as 4/17/96. The sample collection date, as verified by the field samplers log book data entries, was 6/17/96. The incorrect listing on the COC of the sampling date has resulted in the laboratory noting that sample holding times had been missed and the result data sheet showing a sampling date of 4/17/96.

DISPOSITION OF SAMPLES:

This ROD is to serve as documentation from WHC that the sampling date of 4/17/96, as listed on the COC, is incorrect and that the correct sampling date is 6/17/96. The WHC customer has asked that the result data report, the original and priority re-run, be corrected to show the sampling date of 6/17/96. The case narrative is to be re-written to report the data results using the correct sampling date (6/17/96).

Post-it™ Fax Note 7671	Date 8/9	# of pages ▶ 1
To D. Swenson	From K.N. Pool	
Co./Dept. Quanterra	Co. WHC	
Phone #	Phone # 372-2557	
Fax # 375-5590	Fax #	

APPROVAL SIGNATURES:

Sharon Steele K.N. Pool for S.S. 8/7/96
SDLA Project Coordinator (Print/Sign Name) Date

C. N. Villalobos
Technical Representative (Print/Sign Name) Date

Quanterra August 15, 1996 09:22 am
Account: 10722 Project: 519.136 Quanterra-Richland QAS No. 861 Rev. 1
Master Sample Login: 11452

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: S. Fournier PM Review: Abby Wolder

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
11452-001	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
11452-001DUP	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
11452-001MS	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
11452-001MSD	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
11452-001MSDRD1	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	VI - Vial-40ml	PH/9040/Q4	S	COLD	02-JUL-96	18-APR-96	R160	(236686:99)
1		TOC/9060/Q4	S	COLD	02-JUL-96	15-MAY-96	R160	(236687:98)
2		VOA/8240/Q4	S	COLD	02-JUL-96	01-MAY-96	1091	(236684:100 236685:100)
1	AM - Amber Glass-1L	AS/7060/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		HG/7470/Q4	S	COLD	02-JUL-96	15-MAY-96	R160	(236688:100)
1		ICAP/6010/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		PB/7421/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		SE/7740/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1	VI - Vial-20ml	HOLD//Q4	S	COLD	11-***-**	11-***-**	R160	(236695:80)
1	VI - Vial-40ml	PH/9040/Q4	S	COLD	02-JUL-96	18-APR-96	R160	(236686:99)
1		TOC/9060/Q4	S	COLD	02-JUL-96	15-MAY-96	R160	(236687:98)
1	VI - Vial-40ml	TOC/9060/Q4	S	COLD	02-JUL-96	15-MAY-96	R160	(236687:98)
2		VOA/8240/Q4	S	COLD	02-JUL-96	01-MAY-96	1091	(236684:100 236685:100)
1	AM - Amber Glass-1L	AS/7060/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		HG/7470/Q4	S	COLD	02-JUL-96	15-MAY-96	R160	(236688:100)
1		ICAP/6010/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		PB/7421/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		SE/7740/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
2	VI - Vial-40ml	VOA/8240/Q4	S	COLD	02-JUL-96	01-MAY-96	1091	(236684:100 236685:100)
1	AM - Amber Glass-1L	AS/7060/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		HG/7470/Q4	S	COLD	02-JUL-96	15-MAY-96	R160	(236688:100)
1		ICAP/6010/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		PB/7421/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)
1		SE/7740/Q4	S	COLD	02-JUL-96	14-OCT-96	R160	(236688:100)

3*=Sample has not been rad screened.

Quanterra August 15, 1996 09:22 am
Account: 10722 Project: 519.136 Quanterra-Richland QAS No. 861 Rev. 1
Master Sample Login: 11452

Project Manager: W. Price

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

Sample No. / Comments / Data:	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
11452-001MSRD1	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
11452-001RD1	BOHX42	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	1	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632401								
11452-002	BOHX43	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	3	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632402								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	VI - Vial-40ml	PH/9040/Q4	S	COLD	02-JUL-96	18-APR-96	R16D	(236691:99)
1		TOC/9060/Q4	S	COLD	02-JUL-96	15-MAY-96	R16D	(236692:98)
2		VOA/8240/Q4	S	COLD	02-JUL-96	01-MAY-96	109I	(236689:100 236690:100)
1	AN - Amber Glass-1L	AS/7060/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1		HG/7470/Q4	S	COLD	02-JUL-96	15-MAY-96	R16D	(236693:100)
1		ICAP/6010/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1		PB/7421/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1		SE/7740/Q4	S	COLD	02-JUL-96	14-OCT-96	R16D	(236693:100)
1	VI - Vial-20ml	MOLD//Q4	S	COLD	11-&&&-**	11-&&&-**	R16D	(236694:80)

11452-002RD1	BOHX43	Liquid	17-JUN-96 14:00	25-JUN-96 10:00	09-JUL-96	FED-EX	3	Screening not Required
REPORT ON A PER WEIGHT BASIS./NOTE: RICHLAND ID 60632402								

3*=Sample has not been rad screened.

Temp 2°c Cux# 7492

[redacted]

Chain of Custody Record

Jo St Louis

Quanterra Environmental Services

QUA-4124 1

Client: Westinghouse	Project Manager: Van Putney	Date: 6-25-96	Chain Of Custody Number: 54400
Address:	Telephone Number (Area Code)/Fax Number:	Lab Number:	Page 1 of 1
City: / State: / Zip Code:	Site Contact:	Lab Contact:	
Project Name: SAF 96-016	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed): SEE COC

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH
60632401 BOHX42	Chemical bottles only											
↓ 02 ↓ X43												

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal: ☑ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other Due 7-10-96

QC Requirements (Specify): SDG W01056

1. Relinquished By: Hudelberg Quanterra	Date: 6-25-96	Time: 16:00	1. Received By: 2nd m [illegible]	Date: 6-26-96	Time: 09:00
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C # 100204 Page 1 of 1

Collector HULSE, KARL	Contact/Requestor VILLALOBOS, CARMEN	Tel. No. 373-4753 MSIN S6-19 FAX
SAF Number 96-016	Sample Origin PUREX	Purchase Order/Charge Code
Project Title PUREX Vessels Flush Solutions	Logbook # WHC-N-205	Ice Chest # Temp.
Shipped To (Lab) Quanterra	Method of Shipment Gov. Vehicle	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround PRIORITY	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Perservative
B0HX42		L	4/17/96	1400	(1) 20 P	ACTIVITY SCAN (Lab Specific) 80%	None
B0HX42		L	4/17/96	1400	(1) 1000 aG	ICP Metals, TAL (6010) plus, Lead 97421), Arsenic (7060), Selenium (7740), Mercury (7470) 75%	Cool to 4°C
B0HX42		L	4/17/96	1400	(1) 40 aGs	pH (9040) 100%	None
B0HX42		L	4/17/96	1400	(1) 40 aGs	TOC (9060) 6006 32401 100%	Cool to 4°C
B0HX42		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B0HX42		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 20 P	ACTIVITY SCAN (Lab Specific) 80%	None
B0HX43		L	4/17/96	1400	(1) 1000 aG	ICP Metals, TAL (6010) plus, Lead (7421), Arsenic (7060), Selenium (7740), Mercury (7470) 250 ml 25%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 40 aGs	pH (9040) 100%	None
B0HX43		L	4/17/96	1400	(1) 40 aGs	TOC (9060) 6006 32402 100%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B0HX43		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C

further inquiry

20,000 CPM

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☒

List all known wastes. B0HX42 ICP Metals 1L Bottle contains only about 250 ml. This was all sample that could be obtained

SPECIAL INSTRUCTIONS Hold Time

Priority Turnaround Summary Data Deliv

PRIORITY TURNAROUND

SDG-W01056

Relinquished By Print	Sign	Date/Time	Received By Print	Sign	Date/Time
KB Hulse	KB Hulse	6/25/96 0730	K.J. Yang	Yang	6/25/96 0730
Relinquished By		Date/Time	Received By		Date/Time
Yang	K.J. Yang WHC	6/25/96 1005	Karen Hettenberg	Karen Hettenberg	6-25-96 1005
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION	Disposal Method e.g. Return to customer, per lab procedure, used in process	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6001-600 (07/96)

C0011

Client Sample Screening Results

25-Jun-96

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
WHC B0HX42		6/25/1996 10:00:00 AM	QUAD21A	6/25/1996 1:29:32 PM	B0HX42	30	5	0.10541667	147	3.9875
	LIQUID		Bkg:	6/25/1996 4:05:51 AM	BKG	800	49	0.06125	730	0.9125

Anl Date: 6/25/1996	Tot Sa, Alq: 1.00E+00	, 1.00E+01	Alp;	(Dpm/ 1.75E-01	(uCi/ 7.88E-06	(pCi/ 7.88E+00	± 2.0E+01	CAT I	3.2E+00	Lab Alq
Ppt mg: 0	Units: L	, ml	Bet;	Alq): 7.88E+00	Sa): 3.55E-04	Lig): 3.55E+02	± 3.6E+01		1.4E-01	Lig

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
WHC B0HX43		6/25/1996 10:00:00 AM	QUAD21B	6/25/1996 1:20:00 PM	B0HX43	20.01	16998	849.430262	1186811	59309.957
	LIQUID		Bkg:	6/25/1996 4:05:51 AM	BKG	800	36	0.045	750	0.9375

Anl Date: 6/25/1996	Tot Sa, Alq: 2.50E-01	, 1.00E+00	Alp;	(Dpm/ 7.99E+02	(uCi/ 9.00E-02	(pCi/ 3.60E+05	± 4.7E+03	CAT III	6.9E-05	Lab Alq
Ppt mg: 8.6	Units: L	, ml	Bet;	Alq): 1.16E+05	Sa): 1.31E+01	Lig): 5.22E+07	± 4.8E+04		9.6E-07	Lig

Reviewed 6/25/96

Soil/Solid Samples

Sample # BOHX43					Total Grams per sample	430		
isotope	A_2 in GBq	pCi/G	Bq/G	KBq/G	KBq/ sample	µCi/ sample	Ltd Qty Value in MBq	Unity for Ltd Qty
Total Alpha	.002	745	27.5650	0.0276	11.8530	0.3204	0.0020	0.6000
Toatl Beta	20	43100	1,594.7000	1.5947	685.7210	18.5330	20.0000	0.0034
Cs-137	500	21300	788.1000	0.7881	338.8830	9.1590	500.0000	0.0001
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
			0.0000	0.0000	0.0000	0.0000	0.0000	??
TOTAL		65,145.00	2,410.3650	2.4104	1,036.4570	28.0124		0.6035

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000086 Sample ID: BOHX42

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Actinium-228 by GEA	0	< 1.224e-04	uCi/mL		06/18/96	eal
Ac-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Alpha in Liquid Samples	0	4.21E-07	uCi/mL		06/19/96	dgg
Alpha Liq.- Rel. % Count Error	0	1.21E+02	% Ct. Error		06/19/96	dgg
Americium-241 by GEA	0	< 1.622e-04	uCi/mL		06/18/96	eal
Am-241 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Americium-243 by GEA	0	< 4.138e-05	uCi/mL		06/18/96	eal
Am-243 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Beta in Liquid Samples	0	< 1.69E-06	uCi/mL		06/19/96	dgg
Beta Liq.- Rel. % Count Error	0	5.00E+02	% Ct. Error		06/19/96	dgg
Bismuth-212 by GEA	0	< 3.275e-04	uCi/mL		06/18/96	eal
Bi-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Bismuth-214 by GEA	0	< 6.584e-05	uCi/mL		06/18/96	eal
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Cadmium-109 by GEA	0	< 4.668e-04	uCi/mL		06/18/96	eal
Cd-109 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ce/Pr-144 by GEA	0	< 2.177e-04	uCi/mL		06/18/96	eal
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-56 by GEA	0	< 2.360e-05	uCi/mL		06/18/96	eal
Co-56 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-57 by GEA	0	< 1.493e-05	uCi/mL		06/18/96	eal
Co-57 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-60 by GEA	0	< 2.394e-05	uCi/mL		06/18/96	eal
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-134 by GEA	0	< 2.191e-05	uCi/mL		06/18/96	eal
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-137 by GEA	0	< 6.041e-05	uCi/mL		06/18/96	eal
Cs-137 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Europium-152 by GEA	0	< 9.094e-05	uCi/mL		06/18/96	eal
Eu-152 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-154 by GEA	0	< 7.154e-05	uCi/mL		06/18/96	eal
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-155 by GEA	0	< 6.082e-05	uCi/mL		06/18/96	eal
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Mercury-203 by GEA	0	< 1.921e-05	uCi/mL		06/18/96	eal
Hg-203 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Iodine-131 by GEA	0	< 2.436e-05	uCi/mL		06/18/96	eal
I-131 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Potassium-40 by GEA	0	< 9.284e-04	uCi/mL		06/18/96	eal
K-40 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-22 by GEA	0	< 2.457e-05	uCi/mL		06/18/96	eal
Na-22 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-24 by GEA	0	< 1.656e-05	uCi/mL		06/18/96	eal
Na-24 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Niobium-94 by GEA	0	< 2.041e-05	uCi/mL		06/18/96	eal
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-237 by GEA	0	< 1.476e-04	uCi/mL		06/18/96	eal
Np-237 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-239 by GEA	0	< 5.683e-05	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Sample #: S96P000086 Sample ID: BOHX42 [Continued]						
Np-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-233 by GEA	0	< 4.734e-05	uCi/mL		06/18/96	eal
Pa-233 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-234m by GEA	0	< 3.441e-05	uCi/mL		06/18/96	eal
Pa-234m GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-212 by GEA	0	< 4.486e-05	uCi/mL		06/18/96	eal
Pb-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-214 by GEA	0	< 1.149e-04	uCi/mL		06/18/96	eal
Pb-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Plutonium-239 by GEA	0	< 1.919e-01	uCi/mL		06/18/96	eal
Pu-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-224 by GEA	0	< 4.621e-04	uCi/mL		06/18/96	eal
Ra-224 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-226 by GEA	0	< 4.274e-04	uCi/mL		06/18/96	eal
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ruthenium-103 by GEA	0	< 2.045e-05	uCi/mL		06/18/96	eal
Ru-103 GEA Rel % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Ru/Rh-106 by GEA	0	< 4.328e-04	uCi/mL		06/18/96	eal
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Selenium-75 by GEA	0	< 3.023e-05	uCi/mL		06/18/96	eal
Se-75 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Tin-113 by GEA	0	< 3.434e-05	uCi/mL		06/18/96	eal
Sn-113 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Strontium-85 by GEA	0	< 2.613e-05	uCi/mL		06/18/96	eal
Sr-85 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Thorium-228 by GEA	0	< 1.576e-03	uCi/mL		06/18/96	eal
Th-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-229 by GEA	0	< 6.639e-05	uCi/mL		06/18/96	eal
Th-229 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-234 by GEA	0	< 8.867e-04	uCi/mL		06/18/96	eal
Th-234 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thallium-208 by GEA	0	< 2.802e-04	uCi/mL		06/18/96	eal
Tl-208 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium/Thorium-233 by GEA	0	< 1.489e-02	uCi/mL		06/18/96	eal
U/Th-233 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium-235 by GEA	0	< 2.622e-05	uCi/mL		06/18/96	eal
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Yttrium-88 by GEA	0	< 2.565e-05	uCi/mL		06/18/96	eal
Y-88 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Zr/Nb-95 by GEA	0	< 3.938e-05	uCi/mL		06/18/96	eal
Zr/Nb-95 GEA Rel % Count. Err	0	n/a	% Ct. Error		06/18/96	eal
Sample #: S96P000087 Sample ID: BOHX43						
Actinium-228 by GEA	0	< 1.002e-04	uCi/mL		06/18/96	eal
Ac-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Alpha in Liquid Samples	0	7.45E-04	uCi/mL 7.45×10^{-2}		06/19/96	dgg
Alpha Liq.- Rel. % Count Error	0	2.74E+00	% Ct. Error		06/19/96	dgg
Americium-241 by GEA	0	< 4.394e-04	uCi/mL		06/18/96	eal
Am-241 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Americium-243 by GEA	0	< 1.025e-04	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000087 Sample ID: BOHX43 [Continued]

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Am-243 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Beta in Liquid Samples	0	6.44E-02	uCi/mL 4.32x10⁴		06/19/96	dgg
Beta Liq.- Rel. % Count Error	0	2.07E-01	% Ct. Error		06/19/96	dgg
Bismuth-212 by GEA	0	< 3.750e-04	uCi/mL		06/18/96	eal
Bi-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Bismuth-214 by GEA	0	< 1.136e-04	uCi/mL		06/18/96	eal
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Cadmium-109 by GEA	0	< 1.228e-03	uCi/mL		06/18/96	eal
Cd-109 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ce/Pr-144 by GEA	0	< 6.107e-04	uCi/mL		06/18/96	eal
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-56 by GEA	0	< 2.349e-05	uCi/mL		06/18/96	eal
Co-56 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-57 by GEA	0	< 4.042e-05	uCi/mL		06/18/96	eal
Co-57 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-60 by GEA	0	< 2.871e-05	uCi/mL		06/18/96	eal
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-134 by GEA	0	< 4.758e-05	uCi/mL		06/18/96	eal
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-137 by GEA	0	2.130e-02	uCi/mL 2.13x10⁴		06/18/96	eal
Cs-137 GEA Rel. % Count Error	0	1.50	% Ct. Error		06/18/96	eal
Europium-152 by GEA	0	< 8.134e-05	uCi/mL		06/18/96	eal
Eu-152 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-154 by GEA	0	< 5.834e-05	uCi/mL		06/18/96	eal
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-155 by GEA	0	< 1.677e-04	uCi/mL		06/18/96	eal
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Mercury-203 by GEA	0	< 6.201e-05	uCi/mL		06/18/96	eal
Hg-203 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Iodine-131 by GEA	0	< 7.454e-05	uCi/mL		06/18/96	eal
I-131 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Potassium-40 by GEA	0	< 8.997e-04	uCi/mL		06/18/96	eal
K-40 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-22 by GEA	0	< 2.014e-05	uCi/mL		06/18/96	eal
Na-22 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-24 by GEA	0	< 1.982e-05	uCi/mL		06/18/96	eal
Na-24 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Niobium-94 by GEA	0	< 2.271e-05	uCi/mL		06/18/96	eal
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-237 by GEA	0	< 3.743e-04	uCi/mL		06/18/96	eal
Np-237 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-239 by GEA	0	< 1.577e-04	uCi/mL		06/18/96	eal
Np-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-233 by GEA	0	< 1.389e-04	uCi/mL		06/18/96	eal
Pa-233 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-234m by GEA	0	< 5.306e-05	uCi/mL		06/18/96	eal
Pa-234m GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-212 by GEA	0	< 1.164e-04	uCi/mL		06/18/96	eal
Pb-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-214 by GEA	0	< 3.021e-04	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000087 Sample ID: BOHX43 [Continued]

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Pb-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Plutonium-239 by GEA	0	< 5.575e-01	uCi/mL		06/18/96	eal
Pu-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-224 by GEA	0	< 1.290e-03	uCi/mL		06/18/96	eal
Ra-224 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-226 by GEA	0	< 1.278e-03	uCi/mL		06/18/96	eal
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ruthenium-103 by GEA	0	< 6.930e-05	uCi/mL		06/18/96	eal
Ru-103 GEA Rel % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Ru/Rh-106 by GEA	0	< 9.131e-04	uCi/mL		06/18/96	eal
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Selenium-75 by GEA	0	< 8.328e-05	uCi/mL		06/18/96	eal
Se-75 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Tin-113 by GEA	0	< 1.033e-04	uCi/mL		06/18/96	eal
Sn-113 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Strontium-85 by GEA	0	< 6.957e-05	uCi/mL		06/18/96	eal
Sr-85 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Thorium-228 by GEA	0	< 3.910e-03	uCi/mL		06/18/96	eal
Th-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-229 by GEA	0	< 1.781e-04	uCi/mL		06/18/96	eal
Th-229 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-234 by GEA	0	< 2.527e-03	uCi/mL		06/18/96	eal
Th-234 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thallium-208 by GEA	0	< 8.152e-04	uCi/mL		06/18/96	eal
Tl-208 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium/Thorium-233 by GEA	0	< 4.681e-02	uCi/mL		06/18/96	eal
U/Th-233 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium-235 by GEA	0	< 7.793e-05	uCi/mL		06/18/96	eal
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Yttrium-88 by GEA	0	< 1.484e-05	uCi/mL		06/18/96	eal
Y-88 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Zr/Nb-95 by GEA	0	< 5.770e-05	uCi/mL		06/18/96	eal
Zr/Nb-95 GEA Rel % Count. Err	0	n/a	% Ct. Error		06/18/96	eal

RADIOACTIVE SHIPMENT RECORD

3. Page 1 of 1 | 33454

1. SHIP TO
Company: Quanterra
Address: 2800 George Washington Way
City, State, Zip: Richland, WA 99352
Attention: Tami Heidelberg
Phone: 509-375-3131

2. SHIP FROM U.S. DEPT. OF ENERGY C/O
Company: Westinghouse Hanford
Address: 6269 Bldg
City, State, Zip: 200 W
Contact: K.J. Young
Phone: 509-373-7002

4. Ship ☑ Prepaid ☐ Collect
Via: ☑ Motor-Rail ☐ Air Pssr ☐ Excl. Use ☐ Air Cargo ☐ UPS Surface ☐ Mail ☐ Site Carrier
SHIPMENT AUTHORIZATION NUMBER

5. HM Proper Shipping Name: Radioactive Material,

	excepted package - empty packaging	7	UN2910
	excepted package - instruments or articles	7	UN2910
✓	excepted package - limited quantity of material	7	UN2910
	excepted package - articles manufactured from natural or depleted uranium or natural thorium	7	UN2910
	Special Form, n.o.s.	7	UN2974
	Low Specific Activity, n.o.s.	7	UN2912
	n.o.s.	7	UN2982
	Fissile, n.o.s.	7	UN2918
	(other)		

6. Markings Applied
Package Orientation ☑
Gross Weight ☐
Radioactive - LSA ☐
Type A ☐
Type B ☐

7. For Normal Form
Identify
Physical Form: ☑ Liquid ☐ Gas ☐ Solid
Chemical Form: ☐ Metal ☐ Oxide ☐ Elemental ☐ Nitrate
Other: ☑ Mixture

8. Additional RAM Desc.
Limited Quantity Radioactive Material ☑
Highway Route Controlled Quantity ☐

9. Placards Applied ☐ Yes ☑ No
If Rail Specify Placards
Route Plan ☐ Yes ☑ No

11a. TYPE PACKAGE
Strong Tight ☑
Type A ☐
Type B ☐
Type B(U) ☐
Type B(M) ☐

11b. CONSTRUCTION
☐ Box, FB
☐ Wood
☐ Steel
☐ Drum
☐ Cask
Other: Poly Box

11c. FISSILE CLASS
Non-Fissile ☑
Fissile Exempt ☐
Fissile I ☐
Fissile II ☐
Fissile III ☐
Gms Fissile

11d. Labels Applied
Empty ☐
Radioactive White I ☐
Radioactive Yellow II ☐
Radioactive Yellow III ☐
Subsidiary Hazard: N/A ☑

10. EMERGENCY RESPONSE
Telephone: (509) 373-3800
Emergency Response Guide(s): #61

Warning – Fissile Class III Shipment. Do Not Load More Than NA Packages Per Vehicle. In Loading and Storage Areas, Keep at Least 20 Feet From Other Packages Bearing Radioactive Labels.

12.

No. Pkgs.	Model Package	COC/Spec	Serial No.	Seal No.	T.I.	Isotopes	Curies/Pkg	Gr. Wt.
1	4HZY	NA	03-95, 04-019	Tape	N/A	Cs-137	1036 KBq	45 LBS
	(SAF-# 96-016 Sample # BOHX42, BOHX43)							
	COC-# 100204							
(Shipper may describe package in detail on one of the unused lines above)				TOTALS	N/A		1036KBq	45LBS

13. This is to certify that the above named materials are properly classified, described packaged, marked and labeled, and are in proper condition for transportation, acording to the applicable federal, state local and international regulations for the transportation of hazardous materials.
Certifier's Signature: On behalf of DOE-RL: Ken Young | Date: 6-25-96 | Organization: Sampling & Mobile Labs | Complete Cost Code (Inc. End Function): KP50F / 8H100

14. Surface Dose Rate of Package: ☒ <0.5 or ____ mrem/hr (N+β γ)
Dose Rate at 1 Meter from Surface of Package: ☒ <0.5 or ____ mrem/hr (N+β γ)
Smears of Outer Container: ☒ <22 dpm β γ/cm² ☒ <2.2 dpm α/cm² ☒ <Tbl. 2-2 HSRCM Limits
TRUCK LOAD OR EXCLUSIVE USE: Surface ☒ <200 mrem/hr (N+β γ); @ 6 feet ☒ <10 mrem/hr (N+β γ); @ Cab or sleeper ☒ <2 mrem/hr (N+β γ)
Additional Data and Instructions (inc. Readings on Internal Packaging)
Signature - Radiation Monitoring: [signature] 60705 | Bldg. 6269 | Survey No. WS250 1080 | Date 6/25/96

15. AIR TRANSPORT CERTIFICATION
CARGO AIRCRAFT: ☐ Cargo Aircraft Only Labels Applied
PASSENGER AIRCRAFT: ☐ 1. Ltd Qty ☐ 2. <3 T.I. ☐ 3. Research/Medical Diagnosis ☐ 4. Human Medical Research
Pkg. Dimensions: NA
Shipment has been inspected and verified to be in compliance with DOT regulations
Authorized Signature: [signature] | Printed Name: M.A. SAMS | Date: 6-25-96

16. PICKUP OF SHIPMENT
Date of Shipment: 6-25-96 | Agent: Ken Young | Driver Signature: Ken Young | Vehicle Number: 4625

17. RECEIPT OF SHIPMENT
Shipment No.: RMW-0067 | Date Shipped: 6-25-96 | Received in Good Order Unless Otherwise Noted | Vehicle Number
Surveyed By | Date Received | Signature | Printed Name

Karen Stottenberg - Quanterra 6-25-96

54-6000-088 (12/94)

0001E

"THIS PACKAGE CONFORMS TO THE CONDITIONS AND LIMITATIONS SPECIFIED IN 49 CFR 173.421 FOR RADIOACTIVE MATERIAL"

00019

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 6-25-96 1100 Client Name WHC

Project/Client # 96-016 Batch or Case # _____

Cooler ID (if noted on outside of cooler) SM-03-95040019

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes [X] No [ ]
3. Custody Seals dated and signed? Yes [X] No [ ]
4. Chain of Custody record is taped on inside of cooler lid? Yes [X] No [ ]
5. Vermiculite/packing material is: Wet [ ] Dry [X] _____
6. Each sample is in a plastic bag? Yes [X] No [ ] _____
7. Number of sample containers in cooler: 12
8. Samples have: X tape ____ hazard labels
   X custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant Present? Yes [X] No [ ] Sample Temperature 4°C
11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #(s) N/A
    Request for Analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes [ ] No [X]
13. Memos have been initiated for all anomalies identified above? Yes [X]

Printed Name/Signature _____ Date/Time _____

0002C

Quanterra Environmental Services

COP: RW+WI
DATE: 6-26-96
TIME: 13:15
BY: 2m

Login No.: 11452

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Times Beach
Project No: 519.136
Shipper/No: FedEx 109 2644 761

Date: 6-26-96 Time: 09:00
Initiated by: Fred M Mitchell
RFA/COC Numbers: 54400

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☐ pH _____
   - ☐ other: _____
3. ☐ Sample received in improper container.
4. ☐ Sample received without proper paperwork. Explain: _____
5. ☐ Paperwork received without sample.
6. ☐ No sample ID on sample container.
7. ☑ Custody tape disturbed/broken/missing.
8. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
9. ☐ All coolers on airbill not received with shipment.
10. ☐ Other (explain below): _____

☐ No variances were noted during sample receipt. Cooler Temperature Upon Receipt: 2°C

Notes: Activity Scans has seals Broken

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____
☑ Sample(s) processed "as is".
☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) Fred M Mitchell Date: 6-26-96
Project Management Review: Tony Wolf Date: 6-26-96

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 11/24/95

00021

VOLATILE ORGANICS

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: BOHX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Bromomethane	74-83-9	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Vinyl Chloride	75-01-4	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Chloroethane	75-00-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Methylene Chloride	75-09-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Acetone	67-64-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Carbon Disulfide	75-15-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chloroform	67-66-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromodichloromethane	75-27-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Dibromochloromethane	124-48-1	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromoform	75-25-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
2-Hexanone	591-78-6	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Tetrachloroethene	127-18-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
EthylBenzene	100-41-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Styrene	100-42-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Xylene (total)	1330-20-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	103	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	101	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	114	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: BOHX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	157	%REC			1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	106	%REC			1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	112	%REC			1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	98	%REC			1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	104	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	98	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	113	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID: BOHX42

Quanterra ID : 11452-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	155	%REC			1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	104	%REC			1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	112	%REC			1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	105	%REC			1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	98	%REC			1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	105	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	100	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	114	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: B0HX43

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Bromomethane	74-83-9	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Vinyl Chloride	75-01-4	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Chloroethane	75-00-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Methylene Chloride	75-09-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Acetone	67-64-1	QCBLK105677-1	07/01/96	07/01/96	49	UG/KG		20	1
Carbon Disulfide	75-15-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chloroform	67-66-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromodichloromethane	75-27-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Dibromochloromethane	124-48-1	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromoform	75-25-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
2-Hexanone	591-78-6	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Tetrachloroethene	127-18-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
EthylBenzene	100-41-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Styrene	100-42-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Xylene (total)	1330-20-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Unknown	TIC-2	QCBLK105677-1	07/01/96	07/01/96	25	UG/KG	J		1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	100	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	111	%REC			1

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCBLK105677-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Bromomethane	74-83-9	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Vinyl Chloride	75-01-4	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Chloroethane	75-00-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Methylene Chloride	75-09-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Acetone	67-64-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Carbon Disulfide	75-15-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chloroform	67-66-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromodichloromethane	75-27-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Dibromochloromethane	124-48-1	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromoform	75-25-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
2-Hexanone	591-78-6	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Tetrachloroethene	127-18-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
EthylBenzene	100-41-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Styrene	100-42-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Xylene (total)	1330-20-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	99	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	106	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCLCS105677-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	147	%REC			1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	103	%REC			1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	110	%REC			1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	96	%REC			1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	104	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	100	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	114	%REC			1

RECORD COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0HX42

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: 11452-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5969

Level: (low/med) LOW Date Received: 06/25/96

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

RECORD COPY

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0HX42

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: 11452-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5969

Level: (low/med) LOW Date Received: 06/25/96

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

RECORD COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0HX43

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: 11452-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5972

Level: (low/med) LOW Date Received: 06/25/96

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	49	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E RECORD COPY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0HX43

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: 11452-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5972

Level: (low/med) LOW Date Received: 06/25/96

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	23.31	25	J

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	B0HX42	103	101	114	0	0
02	B0HX43	102	100	111	0	0
03	VSPK01	104	100	114	0	0
04	B0HX42MS	104	98	113	0	0
05	B0HX42MSD	105	100	114	0	0
06	VBLK01	102	99	106	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(80-120)
SMC2 (BFB)	= Bromofluorobenzene	(80-120)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix Spike - EPA Sample No.: B0HX42

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	0	78.56	157	1-234
Trichloroethene	50.00	0	53.06	106	71-157
Benzene	50.00	0	55.87	112	37-151
Toluene	50.00	0	50.82	102	47-150
Chlorobenzene	50.00	0	49.14	98	37-160

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	77.61	155	1	14	1-234
Trichloroethene	50.00	51.73	104	2	14	71-157
Benzene	50.00	56.06	112	0	11	37-151
Toluene	50.00	52.32	105	3	13	47-150
Chlorobenzene	50.00	49.22	98	0	13	37-160

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0HX42MS

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: 11452-001MS

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5970

Level: (low/med) LOW Date Received: 06/25/96

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	65	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	79	
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	58	
107-06-2	1,2-Dichloroethane	56	
78-93-3	2-Butanone	44	
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	59	
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	53	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	56	
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	50	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	51	
108-90-7	Chlorobenzene	49	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0HX42MSD

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: 11452-001MSD

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5971

Level: (low/med) LOW Date Received: 06/25/96

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	65	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	78	
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	58	
107-06-2	1,2-Dichloroethane	56	
78-93-3	2-Butanone	58	
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	60	
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	52	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	56	
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	53	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	52	
108-90-7	Chlorobenzene	49	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Lab File ID: F5953 Lab Sample ID: QCBLK105677

Date Analyzed: 07/01/96 Time Analyzed: 0650

GC Column: RTX-502.2 ID: 0.530(mm) Heated Purge: (Y/N) N

Instrument ID: MSF

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	B0HX42	11452-001	F5969	1504
02	B0HX43	11452-002	F5972	1634
03	VSPK01	QCSPK105677	F5968	1434
04	B0HX42MS	11452-001MS	F5970	1534
05	B0HX42MSD	11452-001MSD	F5971	1604

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: QCBLK105677

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5953

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: QCBLK105677

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5953

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9A-LCS
VOA WATER LCS RECOVERY

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

EPA Sample No.: VSPK01 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	74	147	1-234
Trichloroethene	50	52	103	71-157
Benzene	50	55	110	37-151
Toluene	50	51	102	47-150
Chlorobenzene	50	48	96	37-160

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

Note: Additional compounds may be spiked whose recoveries are neither calculated nor controlled upon.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VSPK01

Lab Name: QUANTERRA MO Contract: 519-136

Lab Code: ITMO Case No.: V45201 SAS No.: SDG No.: W01056

Matrix: (soil/water) WATER Lab Sample ID: QCSPK105677

Sample wt/vol: 5.00 (g/mL) G Lab File ID: F5968

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/01/96

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	39	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	74	
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	57	
107-06-2	1,2-Dichloroethane	56	
78-93-3	2-Butanone	50	
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	59	
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	52	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	55	
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	51	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	51	
108-90-7	Chlorobenzene	48	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

METALS

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: BOHX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	5.3	MG/KG	U	20.0	1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	3.5	MG/KG	U	6.0	1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	0.21	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	0.05	MG/KG	U	0.50	1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	0.24	MG/KG	U	0.50	1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	185	MG/KG	B	500	1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	0.41	MG/KG	U	1.0	1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	0.48	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	0.56	MG/KG	U	2.5	1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	2.6	MG/KG	B	10.0	1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	20.9	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	0.12	MG/KG	U	1.5	1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	0.91	MG/KG	U	4.0	1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	182	MG/KG	U	500	1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	0.59	MG/KG	U	1.0	1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	13.4	MG/KG	B	500	1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	0.57	MG/KG	U	5.0	1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	0.65	MG/KG	U	2.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: BOHX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	99	%REC			1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	103	%REC			1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	100	%REC			1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	100	%REC			1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	93	%REC			1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: B0HX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	99	%REC			1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	103	%REC			1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	101	%REC			1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	100	%REC			1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	99	%REC			1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	94	%REC			1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID: B0HX43

Quanterra ID : 11452-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	5.3	MG/KG	U	20.0	1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	3.5	MG/KG	U	6.0	1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	0.44	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	0.05	MG/KG	U	0.50	1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	0.24	MG/KG	U	0.50	1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	602	MG/KG		500	1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	0.70	MG/KG	B	1.0	1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	0.48	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	2.5	MG/KG		2.5	1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	20.7	MG/KG		10.0	1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	42.2	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	0.68	MG/KG	B	1.5	1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	1.1	MG/KG	B	4.0	1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	182	MG/KG	U	500	1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	0.59	MG/KG	U	1.0	1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	2490	MG/KG		500	1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	0.57	MG/KG	U	5.0	1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	1.9	MG/KG	B	2.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCBLK105316-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	5.3	MG/KG	U	20.0	1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	3.5	MG/KG	U	6.0	1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	-0.13	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	0.05	MG/KG	U	0.50	1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	0.24	MG/KG	U	0.50	1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	2.1	MG/KG	U	500	1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	0.41	MG/KG	U	1.0	1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	0.48	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	0.56	MG/KG	U	2.5	1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	2.4	MG/KG	B	10.0	1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	-14.8	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	0.12	MG/KG	U	1.5	1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	0.91	MG/KG	U	4.0	1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	182	MG/KG	U	500	1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	0.59	MG/KG	U	1.0	1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	-11.4	MG/KG	B	500	1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	-0.87	MG/KG	B	5.0	1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	0.65	MG/KG	U	2.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCLCS105316-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	76	%REC			1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	128	%REC			1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	93	%REC			1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	103	%REC			1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	95	%REC			1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	92	%REC			1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	93	%REC			1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	95	%REC			1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	94	%REC			1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	106	%REC			1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	91	%REC			1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Arsenic
Method: EPA 7060
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	0.11	MG/KG	U	1.0	1
BOHX42	11452-001MS	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	92	%REC			1
BOHX42	11452-001MSD	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	97	%REC			1
BOHX43	11452-002	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	0.11	MG/KG	U	1.0	1
NA	QCLCS105321-1	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	105	%REC			20
NA	QCBLK105321-1	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	0.11	MG/KG	U	1.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Lead
Method: EPA 7421
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0HX42	11452-001	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	0.16	MG/KG	BN	0.30	1
B0HX42	11452-001MS	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	138	%REC	N		1
B0HX42	11452-001MSD	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	92	%REC			1
B0HX43	11452-002	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	2.9	MG/KG	N	0.30	1
NA	QCLCS105321-1	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	103	%REC			10
NA	QCBLK105321-1	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	0.12	MG/KG	U	0.30	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Selenium
Method: EPA 7000 Series
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	0.13	MG/KG	U	0.50	1
BOHX42	11452-001MS	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	109	%REC			1
BOHX42	11452-001MSD	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	100	%REC			1
BOHX43	11452-002	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	0.13	MG/KG	U	0.50	1
NA	QCLCS105321-1	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	95	%REC			20
NA	QCBLK105321-1	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	0.13	MG/KG	U	0.50	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Mercury
Method: EPA 7470
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0HX42	11452-001	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	0.05	MG/KG	U	0.20	1
B0HX42	11452-001MS	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	93	%REC			1
B0HX42	11452-001MSD	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	96	%REC			1
B0HX43	11452-002	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	0.05	MG/KG	U	0.20	1
NA	QCLCS105509-1	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	100	%REC			1
NA	QCBLK105509-1	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	0.05	MG/KG	U	0.20	1

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0HX42

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01056

Matrix (soil/water): SOIL Lab Sample ID: 11452-001

Level (low/med): LOW Date Received: 06/25/96

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.3	U		P
7440-36-0	Antimony	3.5	U		P
7440-38-2	Arsenic	0.11	U		F
7440-39-3	Barium	0.21	B		P
7440-41-7	Beryllium	0.05	U		P
7440-43-9	Cadmium	0.24	U		P
7440-70-2	Calcium	185	B		P
7440-47-3	Chromium	0.41	U		P
7440-48-4	Cobalt	0.48	U		P
7440-50-8	Copper	0.56	U		P
7439-89-6	Iron	2.6	B		P
7439-92-1	Lead	0.16	B	N	F
7439-95-4	Magnesium	20.9	B		P
7439-96-5	Manganese	0.12	U		P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	0.91	U		P
7440-09-7	Potassium	182	U		P
7782-49-2	Selenium	0.13	U		F
7440-22-4	Silver	0.59	U		P
7440-23-5	Sodium	13.4	B		P
7440-62-2	Vanadium	0.57	U		P
7440-66-6	Zinc	0.65	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

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RECORD COPY

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0HX43

Lab Name: QUANTERRA MO Contract: 519.136
Lab Code: ITMO Case No.: SAS No.: SDG No.: W01056
Matrix (soil/water): SOIL Lab Sample ID: 11452-002
Level (low/med): LOW Date Received: 06/25/96
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.3	U		P
7440-36-0	Antimony	3.5	U		P
7440-38-2	Arsenic	0.11	U		F
7440-39-3	Barium	0.44	B		P
7440-41-7	Beryllium	0.05	U		P
7440-43-9	Cadmium	0.24	U		P
7440-70-2	Calcium	602			P
7440-47-3	Chromium	0.70	B		P
7440-48-4	Cobalt	0.48	U		P
7440-50-8	Copper	2.5			P
7439-89-6	Iron	20.7			P
7439-92-1	Lead	2.9		N	F
7439-95-4	Magnesium	42.2	B		P
7439-96-5	Manganese	0.68	B		P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	1.1	B		P
7440-09-7	Potassium	182	U		P
7782-49-2	Selenium	0.13	U		F
7440-22-4	Silver	0.59	U		P
7440-23-5	Sodium	2490			P
7440-62-2	Vanadium	0.57	U		P
7440-66-6	Zinc	1.9	B		P

Color Before: Clarity Before: Texture:
Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

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3
BLANKS

Lab Name: QUANTERRA_MO_____ Contract: 519.136___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W01056_____

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	53.2	U	53.2	U	53.2	U			5.320	U	P
Antimony	34.6	U	34.6	U	34.6	U			3.460	U	P
Arsenic	1.1	U	1.1	U	1.1	U	1.1	U	0.110	U	F
Barium	1.2	B	1.2	B	1.2	B			-0.127	B	P
Beryllium	1.0	B	1.0	B	1.1	B			0.050	U	P
Cadmium	2.4	U	2.4	U	2.4	U			0.240	U	P
Calcium	21.3	U	21.3	U	21.3	U			2.130	U	P
Chromium	4.1	U	5.4	B	4.1	U			0.410	U	P
Cobalt	4.8	U	4.8	U	4.8	U			0.480	U	P
Copper	11.2	B	5.9	B	8.3	B			0.560	U	P
Iron	10.5	B	13.1	B	21.8	B			2.435	B	P
Lead	1.2	U	1.2	U	1.2	U	1.2	U	0.120	U	F
Magnesium	65.1	U	65.1	U	65.1	U			-14.844	B	P
Manganese	1.4	B	1.2	U	1.2	B			0.120	U	P
Mercury	0.1	B	0.2	B	0.1	U			0.050	U	CV
Nickel	11.1	B	9.1	U	9.1	U			0.910	U	P
Potassium	1824.0	U	1824.0	U	1824.0	U			182.400	U	P
Selenium	1.3	U	1.3	U	1.3	U	1.3	U	0.130	U	F
Silver	5.9	U	5.9	U	5.9	U			0.590	U	P
Sodium	81.7	U	81.7	U	81.7	U			-11.451	B	P
Vanadium	5.7	U	5.7	U	5.7	U			-0.866	B	P
Zinc	6.5	U	6.5	U	6.5	U			0.650	U	P

FORM III - IN

SW-846

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B0HX42S

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01056

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	80-120	197.2330		5.3200	U	200.00	98.6		P
Antimony	80-120	51.0250		3.4600	U	50.00	102.0		P
Arsenic	80-120	3.6870		0.1100	U	4.00	92.2		F
Barium	80-120	196.5840		0.2100	B	200.00	98.2		P
Beryllium	80-120	5.1340		0.0500	U	5.00	102.7		P
Cadmium	80-120	5.0870		0.2400	U	5.00	101.7		P
Calcium									NR
Chromium	80-120	19.5560		0.4100	U	20.00	97.8		P
Cobalt	80-120	49.1490		0.4800	U	50.00	98.3		P
Copper	80-120	25.3750		0.5600	U	25.00	101.5		P
Iron	80-120	102.4200		2.5990	B	100.00	99.8		P
Lead	80-120	2.9120		0.1620	B	2.00	137.5	N	F
Magnesium									NR
Manganese	80-120	48.6610		0.1200	U	50.00	97.3		P
Mercury	80-120	0.4635		0.0500	U	0.50	92.7		CV
Nickel	80-120	50.2500		0.9100	U	50.00	100.5		P
Potassium									NR
Selenium	80-120	1.0930		0.1300	U	1.00	109.3		F
Silver	80-120	4.6320		0.5900	U	5.00	92.6		P
Sodium									NR
Vanadium	80-120	48.1920		0.5700	U	50.00	96.4		P
Zinc	80-120	51.1990		0.6500	U	50.00	102.4		P

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B0HX42SD

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01056

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	80-120	198.1830		5.3200	U	200.00	99.1		P
Antimony	80-120	51.5600		3.4600	U	50.00	103.1		P
Arsenic	80-120	3.8740		0.1100	U	4.00	96.8		F
Barium	80-120	194.9420		0.2100	B	200.00	97.4		P
Beryllium	80-120	5.0700		0.0500	U	5.00	101.4		P
Cadmium	80-120	5.0170		0.2400	U	5.00	100.3		P
Calcium									NR
Chromium	80-120	19.5360		0.4100	U	20.00	97.7		P
Cobalt	80-120	49.0790		0.4800	U	50.00	98.2		P
Copper	80-120	25.5420		0.5600	U	25.00	102.2		P
Iron	80-120	101.9770		2.5990	B	100.00	99.4		P
Lead	80-120	2.0050		0.1620	B	2.00	92.2		F
Magnesium									NR
Manganese	80-120	48.3080		0.1200	U	50.00	96.6		P
Mercury	80-120	0.4820		0.0500	U	0.50	96.4		CV
Nickel	80-120	50.9660		0.9100	U	50.00	101.9		P
Potassium									NR
Selenium	80-120	1.0030		0.1300	U	1.00	100.3		F
Silver	80-120	4.7070		0.5900	U	5.00	94.1		P
Sodium									NR
Vanadium	80-120	47.9370		0.5700	U	50.00	95.9		P
Zinc	80-120	50.9850		0.6500	U	50.00	102.0		P

Comments:

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6A
MATRIX SPIKE DUPLICATES

EPA SAMPLE NO.

B0HX42SD

Lab Name: QUANTERRA MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01056

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids: 100.0

Percent recoveries:

Analyte	Control Limit	Matrix Spike (S)		Matrix Spike Duplicate (SD)		RPD	Q	M
Al	20%	99.10		98.60		0.5		P
Sb	20%	103.10		102.00		1.1		P
As	20%	96.80		92.20		4.9		F
Ba	20%	97.40		98.20		0.8		P
Be	20%	101.40		102.70		1.3		P
Cd	20%	100.30		101.70		1.4		P
Ca	20%							NR
Cr	20%	97.70		97.80		0.1		P
Co	20%	98.20		98.30		0.1		P
Cu	20%	102.20		101.50		0.7		P
Fe	20%	99.40		99.80		0.4		P
Pb	20%	92.20		137.50		39.4		F
Mg	20%							NR
Mn	20%	96.60		97.30		0.7		P
Hg	20%	96.40		92.70		3.9		CV
Ni	20%	101.90		100.50		1.4		P
K	20%							NR
Se	20%	100.30		109.30		8.6		F
Ag	20%	94.10		92.60		1.6		P
Na	20%							NR
V	20%	95.90		96.40		0.5		P
Zn	20%	102.00		102.40		0.4		P

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7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: W01056

Solid LCS Source: ERA

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				4590.0	3464.7		2280.0	7590.0	75.5
Antimony				39.8	51.0		8.4	119.0	128.1
Arsenic									
Barium				106.0	98.4		74.3	139.0	92.8
Beryllium				51.0	49.0		11.7	90.3	96.1
Cadmium				45.4	44.4		11.9	79.0	97.8
Calcium				1290.0	1331.0		875.0	1750.0	103.2
Chromium				71.0	67.4		38.0	100.0	94.9
Cobalt				49.6	48.4		29.8	70.5	97.6
Copper				112.0	108.0		63.9	162.0	96.4
Iron				9160.0	8437.7		5560.0	13000.0	92.1
Lead									
Magnesium				1160.0	1082.7		691.0	1670.0	93.3
Manganese				154.0	146.2		107.0	208.0	94.9
Mercury									
Nickel				39.4	38.2		21.5	57.5	97.0
Potassium				1420.0	1340.8		880.0	1870.0	94.4
Selenium									
Silver				116.0	123.3		58.2	170.0	106.3
Sodium				1196.0	1155.7		956.8	1435.2	96.6
Vanadium				65.9	60.1		32.0	88.9	91.2
Zinc				134.0	131.0		72.2	199.0	97.8

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: W01056

Solid LCS Source: ERA

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury				1.5	1.5		0.4	2.4	100.0
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Vanadium									
Zinc									

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA_MO Contract: 519.136

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01056

Solid LCS Source: ERA

Aqueous LCS Source:

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				75.4	79.5		37.1	112.0	105.4
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				53.5	55.3		28.1	75.9	103.4
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium				72.3	68.8		37.8	108.0	95.2
Silver									
Sodium									
Vanadium									
Zinc									

FORM VII - IN

SW-846

WET CHEMISTRY

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: pH
Method: EPA 9040
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	pH	PH	QCBLK105343-1	06/27/96	06/27/96	6.48	PH		0.10	1
BOHX42	11452-001DUP	pH	PH	QCBLK105343-1	06/27/96	06/27/96	6.53	PH		0.10	1
BOHX43	11452-002	pH	PH	QCBLK105343-1	06/27/96	06/27/96	11.30	PH		0.10	1
NA	QCBLK105343-1	pH	PH	QCBLK105343-1	06/27/96	06/27/96	5.50	PH		0.10	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Total Organic Carbon
Method: EPA 9060
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	1.00	MG/L	U	1.00	1
BOHX42	11452-001DUP	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	1.00	MG/L	U	1.00	1
BOHX42	11452-001MS	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	98	%REC			1
BOHX43	11452-002	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	48.9	MG/L		1.00	1
NA	QCBLK105350-1	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	1.00	MG/L	U	1.00	1
NA	QCLCS105350-1	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	98	%REC			1

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

ROD-96-0039
Record of Disposition No.

DATE: July 16, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: PUREX Vessels' Flush Solutions/96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42, B0HX43

DESCRIPTION OF EVENT: The customer has requested the Mercury for the above listed samples be rerun with a detection limit of less than 0.20 mg/Kg. The customer has requested the reruns be on a Priority turnaround.

DISPOSITION OF SAMPLES: Quanterra is to rerun the Mercury for the above listed samples within the three business day priority data turnaround requirement. Quanterra can run the samples with a detection limit of less than 0.20 mg/Kg.

APPROVAL SIGNATURES:

S.M.Steele — July 16, 1996
SDLA Project Coordinator (Print/Sign Name) — Date

C.N.Villalobos — 8-6-96
Technical Representative (Print/Sign Name) — Date

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Mercury
Method: EPA 7470
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	0.10	UG/L	U	0.20	1
BOHX42	11452-001MS	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	106	%REC			1
BOHX42	11452-001MSD	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	107	%REC			1
BOHX43	11452-002	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	4.1	UG/L		0.20	1
NA	QCLCS106918-1	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	110	%REC			1
NA	QCBLK106918-1	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	0.10	UG/L	U	0.20	1

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

R00-96-0035
Record of Disposition No.
Rev. 1

DATE: July 9, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: PUREX Vessels' Flush Solutions/96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42, B0HX43

DESCRIPTION OF EVENT: The Chain of Custody for the above listed samples showed the samples were taken on 4/17/96. The samples arrived at Quanterra on 6/28/96. The difference in time from sampling to receipt at the lab exceeds the 14 day holding time for VOA by Method 8240, and the 28 day holding time for both Mercury by Method 7470 and TOC by Method 9060.

DISPOSITION OF SAMPLES: The 4/17/96 date on the Chain of Custody was incorect. The samples were actually collected on 6/17/96. The holding times for the samples were not missed. Quanterra is to analyze the samples as received and note the discrepancy in the narrative.

APPROVAL SIGNATURES:

S.M.Steele — July 9, 1996
SDLA Project Coordinator (Print/Sign Name) — Date

C.N.Villalobos — 7/11/96
Technical Representative (Print/Sign Name) — Date

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

ROD-96-0044
Record of Disposition No.

DATE: August 7, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: 96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42 and B0HX43

DESCRIPTION OF EVENT:

The chain of custody (COC) that was sent with the samples incorrectly listed the sampling date as 4/17/96. The sample collection date, as verified by the field samplers log book data entries, was 6/17/96. The incorrect listing on the COC of the sampling date has resulted in the laboratory noting that sample holding times had been missed and the result data sheet showing a sampling date of 4/17/96.

DISPOSITION OF SAMPLES:

This ROD is to serve as documentation from WHC that the sampling date of 4/17/96, as listed on the COC, is incorrect and that the correct sampling date is 6/17/96. The WHC customer has asked that the result data report, the original and priority re-run, be corrected to show the sampling date of 6/17/96. The case narrative is to be re-written to report the data results using the correct sampling date (6/17/96).

APPROVAL SIGNATURES:

Sharon Steele [signature] for S.S. 8/7/96
SDLA Project Coordinator (Print/Sign Name) Date

C. N. Villalobos [signature] 8/15/96
Technical Representative (Print/Sign Name) Date

Author: Karl B Hulse at ~WHC121
Date: 7/30/96 12:38 PM
Priority: Normal
TO: Carmen N Villalobos at ~WHC139
Subject: Re: PUREX Tank U3 RCRA Concerns

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

Karl,

Could you please respond to the appropriate below through cc:mail? I know you already spoke to me about it, but I would like to have it documented.

Thanks,
Carmen

---------- Forward Header ----------

Subject: PUREX Tank U3 RCRA Concerns
Author: Carmen N Villalobos at ~WHC139
Date: 7/16/96 8:25 AM

Sharon,
I have reviewed the data package for samples BOHX42 & BOHX43 and have some concerns. Could you please address these concerns?

Karl H,
Could you please assist in addressing concerns #2 & 3?

1. Certificate of Analysis:
Section V, Shipping and Receiving, states that the samples arrived out of holding time and the samples were analyzed and reported as received. As you know the chain of custody (COC) incorrectly indicated the sample collection date as April 17 instead of June 17, thus this is the reason for the "out of holding time".
- Could you please have Quanterra rewrite the narrative to note that the holding times were indeed met?

Section V, Wet Chemistry, states that "the samples arrived unpreserved as determined by a pH taken prior to analysis". As you know, these samples require no preservation except to be maintained at 4 degrees celsius.
- Unless Quanterra has a different reason for stating this, could you please have them remove this section. It could lead one to believe that the samples were not handled accordingly.

2. Quanterra's Condition Upon Receipt Variance Report St. Louis Laboratory notes that the activity scans (custody tape) had seals broken.
- Could you please investigate the reason for this?
Karl Hulse could you please provide some assistance.
Carmen: I talked with Karen the sample receiver at Quanterra Richland. She told me that it is standard practice for the activity scan to be opened and checked at Quanterra in Richland. The activity scan is sent along with the sample to St.Louis to keep the sample all together if there are no other rad analysis. The activity scan bottle is not resealed with tamper tape by Quanterra Richland.

3. As you know the chain of custody states the sampling date for samples BOHX42 and BOHX43 as being 4/17/96 instead of 6/17/96.
- An ROD was prepared addressing this anomoly.
Karl H., could you please ensure that the COC, log books, etc. specify the correct sample date?
Karl H., the received date reads 6/25/96 7:30, shouldn't it read 6/17/96 since it is the day actually received by you?
Carmen: The samples were taken by me on 6/17/96 and remained in my custody (locked in a refrigerator) until I delivered them to Quanterra. I relinquished custody on 6/25/96 at Quanterra at which time they were received by the sample custodian for Quanterra.
4. The Master Sample Login 11452 printout states 4/17/96 sample date.
- Could you ensure this is corrected?

5. Quanterra's Laboratory Nonconformance Memo page 2 notes the expired holding times and that no corrective actions were taken.
- Could you please ensure that Quanterra rewrite this memo to state the original concern and to note the corrective action as noted in the second ROD? Since in reality the holding times were not exceeded, could you please have them rewrite page 1 so it doesn't reflect a nonconformance.

6. Mercury was analyzed with a detection limit of 0.20 mg/kg.
- Could you please request a priority rerun of mercury with a detection limit of less than 0.20 mg/kg?

I realize that this is quite a list. However, these are concerns that Ecology has noted in the past. If you have any questions, please call me at 373-4753.

Thanks for your help!!!
Carmen

W1056-QES-535
①

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
C. N. Villalobos, 373-4753	J. E. Mecca, RL	9653803

Subject: TRANSMITTAL OF PLUTONIUM URANIUM EXTRACTION PLANT TANK U3 FLUSH ANALYTICAL RESULTS

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		R. W. Bailey	S6-15	
		R. J. Bliss	B3-04	
		D. G. Hamrick	S6-15	X
		D. G. Harlow	S6-19	
		J. P. Hayfield	S6-18	
	18 SEP 96	G. J. LeBaron	S6-19	X
		S. R. Moreno	B3-06	
	9/18/96	W. A. Peiffer	S6-19	
		M. J. Stephenson	H6-20	
		C. N. Villalobos	S6-19	X
		DGH:CNV File/LB		

A-6001-538 (01/95) WEF008

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

September 18, 1996 9653803

J. E. Mecca, Director
Transition Programs Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Mr. Mecca:

TRANSMITTAL OF PLUTONIUM URANIUM EXTRACTION PLANT TANK U3 FLUSH ANALYTICAL RESULTS

Reference: Letter, D. G. Hamrick, WHC, to J. E. Mecca, RL, "Transmittal of Plutonium Uranium Extraction Plant U Cell Vessels and F11 System Vessels, Part II (Tank F-18) Loop Flush Analytical Results," dated April 25, 1996.

Attachment 1 are laboratory analytical results conducted on the final flush for the Plutonium Uranium Extraction (PUREX) Plant Tank U3. These results are transmitted in accordance with U.S. Department of Energy, Richland Operations Office/Westinghouse Hanford Company agreement with State of Washington Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA).

A copy of the Predetermination Report, designating the final flush solution based on the analytical results, is also included in Attachment 1. The final flush for this tank was designated as non-dangerous waste.

This is the last of the analytical results from vessel flushes as defined in the reference and in WHC-SD-EN-TI-283, Revision 0, "Data Quality Objectives for PUREX Deactivation Flushing."

Attachment 2 is a letter for your transmittal of these results to Ecology and the EPA.

If you have any questions, please contact Mr. G. J. LeBaron (373-1792) of my staff.

Very truly yours,

D. G. Hamrick, Director
PUREX Transition Project
Transition Projects Division

sah

Attachments 2

DOE-HQ - J. E. Newson (w/o attachments)

RL - w/o attachments
G. M. Bell
B. F. Burton, Jr.
J. B. George
B. E. Hill
L. D. Romine
P. J. Valcich
S. J. Veitenheimer
A. H. Wirkkala

9653803

ATTACHMENT 1

TRANSMITTAL OF PLUTONIUM URANIUM EXTRACTION PLANT
TANK U3 FLUSH ANALYTICAL RESULTS

PUREX TANK U3 RCRA ANALYTICAL DATA
TABLE OF CONTENTS

PAGE

DESCRIPTION
RCRA Analytical Data Summary 1

PROCESS SCREENING DATA
Process Screening Sample P3706-P3709 3
Chain of Custody 7

RAD SCREENING SAMPLE
RAD Screening Sample by 222-S lab 13

RCRA PROTOCOL SAMPLE
Certificate of Analysis 17
Analytical Data Summary: Metals
- ICAP Metals for Field Sample Blank (BOHX42) 22
- ICAP Metals Matrix Spike 23
- ICAP Metals Matrix Spike Duplicate 24
- ICAP Metals for RCRA Protocol Sample (BOHX43) 25
- ICAP Metals Quality Control Blank 26
- ICAP Metals Quality Laboratory Control Blank 27
- Arsenic Analysis (incl. all spikes/QC blanks) 28
- Lead Analysis (incl. all spikes/QC blanks) 29
- Selenium Analysis (incl. all spikes/QC blanks) 30
- Mercury Analysis (incl. all spikes/QC blanks) 31

Analytical Data Summary: Wet Chemistry
- pH Analysis for RCRA Protocol Sample (incl. QC blanks) 33
- Total Organic Carbon (TOC) Analysis (incl. all spikes/QC blanks) . . 34

Analytical Data Summary: Volatile Organics
- VOA for Field Sample Blank BOHX42) 36
- VOA Matrix Spike 37
- VOA Matrix Spike Duplicate 38
- VOA for RCRA Protocol Sample (BOHX43) 39
- VOA Quality Control Blank 40
- VOA Quality Laboratory Control Blank 41

Request for Mercury Re-Analysis 42

Certificate of Analysis 43

Mercury Analysis (Incl. All Spikes/QC Blanks 46

Predetermination Report 47

RCRA ANALYTICAL DATA SUMMARY
PUREX Tank U3
SAMPLE LOCATION: TANK U3
SAMPLE ID# B0HX43

Analyte	Dangerous Waste Designation Threshold (mg/L)	RCRA Sample Results (mg/L)
Cadmium	1.0	0.24 (U)
Chromium	5.0	0.70 (B)
Lead	5.0	2.9 (N)
Barium	100.0	0.44 (B)
Silver	5.0	0.59 (U)
Arsenic	5.0	0.11 (U)
Selenium	1.0	0.13 (U)
Mercury	0.2	0.05 (U)
pH	pH<2 or pH>12.5	11.30
Total Organic Carbon (TOC)	100,000 (10wt% based upon designation limits for tri-butyl phosphate)	48.9
Benzene	0.5	undetect (U)
Carbon Tetrachloride	0.5	undetect (U)
Chlorobenzene	100	undetect (U)
Chloroform	6.0	undetect (U)
1,2-Dichloroethane	0.5	undetect (U)
1,1 Dichloroethylene	0.7	undetect (U)
2-Butanone	200	undetect (U)
Tetrachloroethylene	0.7	undetect (U)
Trichloroethylene	0.5	undetect (U)
Vinyl Chloride	0.2	undetect (U)

Definitions:
U = compound not detected
B = compound was found in the blank
N = interference present in matrix

PROCESS SCREENING DATA

Mon, Jun 17, 1996 10:44 AM

SAMPLE INQUIRY

Company Name: PUREX Programs Westinghouse Hanford ComProject Code: U3

Group #: 96

Sample ID: P3706

Sample #: S96P000081

Parameter	Rep	Result	Unit	Date	Analyst
Alpha in Liquid Samples	0	4.33E-04	uCi/mL	06/13/96	akl
Alpha Liq.- Rel. % Count Error	0	5.34E+00	% Ct. Error	06/13/96	akl
Beta in Liquid Samples	0	5.24E-02	uCi/mL	06/13/96	akl
Beta Liq.- Rel. % Count Error	0	3.64E-01	% Ct. Error	06/13/96	akl
Caustic Ratio	0	2.42e-2	lbs NaOH/gal	06/13/96	dgg
Cadmium-ICP-Acid Dil.	0	3.87e-02	ug/mL	06/13/96	bjg
Ce/Pr-144 by GEA	0	< 6.882e-04	uCi/mL	06/12/96	krm
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error	06/12/96	krm
Cobalt-60 by GEA	0	< 4.469e-05	uCi/mL	06/12/96	krm
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error	06/12/96	krm
Color of Sample	0	yellow		06/12/96	smf
Chromium-ICP-Acid Dil.	0	5.00e-01	ug/mL	06/13/96	bjg
Cesium-134 by GEA	0	< 5.402e 05	uCi/mL	06/12/96	krm
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error	06/12/96	krm
Cesium-137 by GEA	0	1.320e-02	uCi/mL	06/12/96	krm
Cs-137 GEA Rel. % Count Error	0	2.02	% Ct. Error	06/12/96	krm
Dose Rate in mrad/hour	0	2.5	mrad/hour	06/12/96	smf
DSC Exotherm using Mettler	0	0	Joules/g	06/12/96	adp
Europium-154 by GEA	0	< 1.669e-04	uCi/mL	06/12/96	krm
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error	06/12/96	krm
Europium-155 by GEA	0	< 1.517e-04	uCi/mL	06/12/96	krm
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error	06/12/96	krm
Niobium-94 by GEA	0	< 5.084e-05	uCi/mL	06/12/96	krm
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error	06/12/96	krm
Nitrate by IC-Dionex 100	0	2.76e+3	ug/mL	06/13/96	dgg
Organic Vol Present/sampleprep	0	none	mL	06/12/96	smf
Lead-ICP-Acid Dil.	0	1.64e+00	ug/mL	06/13/96	bjg
pH Direct	0	2.34	pH	06/12/96	dgg
Pu-239/240 by TRU-SPEC Resin	0	6.77E-05	uCi/mL	06/13/96	akl
Pu239 Relative % Count Error	0	2.40E+00	% Ct. Error	06/13/96	akl
Pu-236 Tracer % Recovery	0	1.01E+02	% Recovery	06/13/96	akl
Radium-226 by GEA	0	< 1.391e-03	uCi/mL	06/12/96	krm
Ra-226 GEA Rel. % Counting Err	0	n/a	% Ct. Error	06/12/96	krm
Received Sample Yet?	0	RECEIVED		06/12/96	lc
Ru/Rh-106 by GEA	0	< 1.059e-03	uCi/mL	06/12/96	krm
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error	06/12/96	krm
Amt of Sam/Present sample prep	0	30	mL	06/12/96	smf
Specific Gravity	0	.994	Sp.G.	06/12/96	adp
Tot. Organic Carbon by Coul.	0	< 5.50E+01	ug/mL	06/13/96	dgg
Uranium by Phosphorescence	0	1.35E+02	ug/mL	06/12/96	dgg
U-Phosphorescence Inst. Error	0	3.09E+00	% Inst Error	06/12/96	dgg
Volume % Solids	0	none	%	06/12/96	smf

SAMPLE INQUIRY

Company Name: PUREX Programs Westinghouse Hanford ComProject Code: U3 Group #: 96

Sample ID: P3707 Sample #: S96P000082

Parameter	Rep	Result	Unit	Date	Analyst
Alpha in Liquid Samples	0	5.56E-04	uCi/mL	06/13/96	akl
Alpha Liq.- Rel. % Count Error	0	4.73E+00	% Ct. Error	06/13/96	akl
Beta in Liquid Samples	0	6.85E-02	uCi/mL	06/13/96	akl
Beta Liq.- Rel. % Count Error	0	3.20E-01	% Ct. Error	06/13/96	akl
Caustic Ratio	0	2.52e-2	lbs NaOH/gal	06/13/96	dgg
Cadmium-ICP-Acid Dil.	0	4.74e-02	ug/mL	06/13/96	bjg
Ce/Pr-144 by GEA	0	< 7.245e-04	uCi/mL	06/12/96	krm
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error	06/12/96	krm
Cobalt-60 by GEA	0	< 4.637e-05	uCi/mL	06/12/96	krm
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error	06/12/96	krm
Color of Sample	0	yellow		06/12/96	smf
Chromium-ICP-Acid Dil.	0	5.83e-01	ug/mL	06/13/96	bjg
Cesium-134 by GEA	0	< 5.786e-05	uCi/mL	06/12/96	krm
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error	06/12/96	krm
Cesium-137 by GEA	0	1.960e-02	uCi/mL	06/12/96	krm
Cs-137 GEA Rel. % Count Error	0	1.64	% Ct. Error	06/12/96	krm
Dose Rate in mrad/hour	0	9	mrad/hour	06/12/96	smf
DSC Exotherm using Mettler	0	0	Joules/g	06/12/96	adp
Europium-154 by GEA	0	< 1.430e-04	uCi/mL	06/12/96	krm
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error	06/12/96	krm
Europium-155 by GEA	0	< 1.610e-04	uCi/mL	06/12/96	krm
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error	06/12/96	krm
Niobium-94 by GEA	0	< 4.776e-05	uCi/mL	06/12/96	krm
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error	06/12/96	krm
Nitrate by IC-Dionex 100	0	3.59e+3	ug/mL	06/13/96	dgg
Organic Vol Present/sampleprep	0	none	mL	06/12/96	smf
Lead-ICP-Acid Dil.	0	2.23e+00	ug/mL	06/13/96	bjg
pH Direct	0	2.06	pH	06/12/96	dgg
Pu-239/240 by TRU-SPEC Resin	0	8.85E-05	uCi/mL	06/13/96	akl
Pu239 Relative % Count Error	0	2.39E+00	% Ct. Error	06/13/96	akl
Pu-236 Tracer % Recovery	0	9.98E+01	% Recovery	06/13/96	akl
Radium-226 by GEA	0	< 1.526e-03	uCi/mL	06/12/96	krm
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error	06/12/96	krm
Received Sample Yet?	0	RECEIVED		06/12/96	lc
Ru/Rh-106 by GEA	0	< 1.140e-03	uCi/mL	06/12/96	krm
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error	06/12/96	krm
Amt of Sam/Present sample prep	0	30	mL	06/12/96	smf
Specific Gravity	0	.985	Sp.G.	06/12/96	adp
Tot. Organic Carbon by Coul.	0	2.31E+02	ug/mL	06/13/96	dgg
Uranium by Phosphorescence	0	1.64E+02	ug/mL	06/12/96	dgg
U-Phosphorescence Inst. Error	0	3.10E+00	% Inst Error	06/12/96	dgg
Volume % Solids	0	none	%	06/12/96	smf

on, Jun 17, 1996 8:43 AM

SAMPLE INQUIRY

ompany Name: PUREX Programs Westinghouse Hanford ComProject Code: U3 Group #: 96

ample ID: 3708 Sample #: S96P000083

arameter	Rep	Result	Unit	Date	Analyst
trite by IC - Dionex 100	0	1.19e03	ug/mL	06/15/96	jlf
- by Pot. Titration	0	1.43e2	ug/mL	06/15/96	rdm
Direct	0	11.55	pH	06/15/96	rdm

SAMPLE INQUIRY

ompany Name: PUREX Programs - Westinghouse Hanford ComProject Code: U3 Group #: 96

ample ID: 3709 Sample #: S96P000084

arameter	Rep	Result	Unit	Date	Analyst
itrite by IC - Dionex 100	0	1.20e03	ug/mL	06/15/96	jlf
H- by Pot. Titration	0	< 125	ug/mL	06/15/96	rdm
H Direct	0	11.53	pH	06/15/96	rdm

CHAIN OF CUSTODY

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

ROD-96-0035
Record of Disposition No.
Rev. 1

DATE: July 9, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: PUREX Vessels' Flush Solutions/96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42, B0HX43

DESCRIPTION OF EVENT: The Chain of Custody for the above listed samples showed the samples were taken on 4/17/96. The samples arrived at Quanterra on 6/28/96. The difference in time from sampling to receipt at the lab exceeds the 14 day holding time for VOA by Method 8240, and the 28 day holding time for both Mercury by Method 7470 and TOC by Method 9060.

DISPOSITION OF SAMPLES: The 4/17/96 date on the Chain of Custody was incorect. The samples were actually collected on 6/17/96. The holding times for the samples were not missed. Quanterra is to analyze the samples as received and note the discrepancy in the narrative.

APPROVAL SIGNATURES:

S.M.Steele — July 9, 1996
SDLA Project Coordinator (Print/Sign Name) — Date

C.N.Villalobos — 7/11/96
Technical Representative (Print/Sign Name) — Date

SAMPLE DATA AND LABORATORY ADMINISTRATION RECORD OF DISPOSITION REV 1	ROD-96-0044 Record of Disposition No.

DATE: August 7, 1996	LABORATORY: Quanterra
PROJECT TITLE/SAF #: 96-016	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: BOHX42 and B0HX43

DESCRIPTION OF EVENT:

The chain of custody (COC) that was sent with the samples incorrectly listed the sampling date as 4/17/96. The sample collection date, as verified by the field samplers log book data entries, was 6/17/96. The incorrect listing on the COC of the sampling date has resulted in the laboratory noting that sample holding times had been missed and the result data sheet showing a sampling date of 4/17/96.

DISPOSITION OF SAMPLES:

This ROD is to serve as documentation from WHC that the sampling date of 4/17/96, as listed on the COC, is incorrect and that the correct sampling date is 6/17/96. The WHC customer has asked that the result data report, the original and priority re-run, be corrected to show the sampling date of 6/17/96. The case narrative is to be re-written to report the data results using the correct sampling date (6/17/96).

APPROVAL SIGNATURES:

Sharon Steele [signature] for S.S. 8/7/96
SDLA Project Coordinator (Print/Sign Name) Date

C. N. Villalobos [signature] 8/15/96
Technical Representative (Print/Sign Name) Date

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C # 100204
		Page 1 of 1

Collector HULSE, KARL	Contact/Requestor VILLALOBOS, CARMEN	Tel. No. 373-4753 MSIN S6-19 FAX
SAF Number 96-016	Sample Origin PUREX	Purchase Order/Charge Code
Project Title PUREX Vessels Flush Solutions	Logbook # WHC-N-205	Ice Chest # Temp.
Shipped To (Lab) Quanterra	Method of Shipment Gov. Vehicle	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround PRIORITY	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B01IX42		L	4/17/96	1400	(1) 20 P	ACTIVITY SCAN (Lab Specific) 80%	None
B01IX42		L	4/17/96	1400	(1) 1000 aG	ICP Metals, TAL (6010) plus, Lead 97421), Arsenic (7060), Selenium (7740), Mercury (7470) 75%	Cool to 4°C
B01IX42		L	4/17/96	1400	(1) 40 aGs	pH (9040) 100%	None
B01IX42		L	4/17/96	1400	(1) 40 aGs	TOC (9060) L0063240.1 100%	Cool to 4°C
B01IX42		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B01IX42		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B01IX43		L	4/17/96	1400	(1) 20 P	ACTIVITY SCAN (Lab Specific) 80%	None
B01IX43		L	4/17/96	1400	(1) 1000 aG	ICP Metals, TAL (6010) plus, Lead (7421), Arsenic (7060), Selenium (7740), Mercury (7470) 250ml 25%	Cool to 4°C
B01IX43		L	4/17/96	1400	(1) 40 aGs	pH (9040) 100%	None
B01IX43		L	4/17/96	1400	(1) 40 aGs	TOC (9060) L0063240.2 100%	Cool to 4°C
B01IX43		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C
B01IX43		L	4/17/96	1400	(1) 40 aGs	VOA (8240) 100%	Cool to 4°C

Further Inquiry

29,000 cpm

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☒

List all known wastes. B01IX42 ICP Metals 1L Bottle contains only about 250 ml. This was all sample that could be obtained

SPECIAL INSTRUCTIONS Hold Time

Priority Turnaround Summary Data Deliv

SDG-W01056

PRIORITY TURNAROUND

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB Hulse		KB Hulse	6/25/96 0730	K.J. Yang		Yang	6/25/96 0730
Yang	K.J. Yang	WHC	6/25/96 1005	Karen Stettenberg		Karen Stettenberg	6-25-96 1005

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

Relinquished By	Date/Time	Received By	Date/Time

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-8001-600 (07/96)

10

Temp 2°c Cux# 7492

Go St Louis

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: Westinghouse	Project Manager: Van Putney	Date: 6-25-96	Chain Of Custody Number: 54400
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
City / State / Zip Code	Site Contact	Lab Contact	
Project Name: SAF 96-016	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): SEE COC

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Sed.	Soil		Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	
60632401 BOHX42	Chemical bottles only												
↓ 02 ↓ X43													

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal: ☑ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other Due 7-10-96

QC Requirements (Specify): SDG W01056

1. Relinquished By: Hudelberg Quanterra	Date: 6-25-96	Time: 16:00	1. Received By: 2nd m titled	Date: 6-26-96	Time: 09:00
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

RAD SCREENING DATA

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000086 Sample ID: BOHX42

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Actinium-228 by GEA	0	< 1.224e-04	uCi/mL		06/18/96	eal
Ac-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Alpha in Liquid Samples	0	4.21E-07	uCi/mL		06/19/96	dgg
Alpha Liq.- Rel. % Count Error	0	1.21E+02	% Ct. Error		06/19/96	dgg
Americium-241 by GEA	0	< 1.622e-04	uCi/mL		06/18/96	eal
Am-241 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Americium-243 by GEA	0	< 4.138e-05	uCi/mL		06/18/96	eal
Am-243 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Beta in Liquid Samples	0	< 1.69E-06	uCi/mL		06/19/96	dgg
Beta Liq.- Rel. % Count Error	0	5.00E+02	% Ct. Error		06/19/96	dgg
Bismuth-212 by GEA	0	< 3.275e-04	uCi/mL		06/18/96	eal
Bi-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Bismuth-214 by GEA	0	< 6.584e-05	uCi/mL		06/18/96	eal
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Cadmium-109 by GEA	0	< 4.668e-04	uCi/mL		06/18/96	eal
Cd-109 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ce/Pr-144 by GEA	0	< 2.177e-04	uCi/mL		06/18/96	eal
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-56 by GEA	0	< 2.360e-05	uCi/mL		06/18/96	eal
Co-56 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-57 by GEA	0	< 1.493e-05	uCi/mL		06/18/96	eal
Co-57 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-60 by GEA	0	< 2.394e-05	uCi/mL		06/18/96	eal
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-134 by GEA	0	< 2.191e-05	uCi/mL		06/18/96	eal
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-137 by GEA	0	< 6.041e-05	uCi/mL		06/18/96	eal
Cs-137 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Europium-152 by GEA	0	< 9.094e-05	uCi/mL		06/18/96	eal
Eu-152 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-154 by GEA	0	< 7.154e-05	uCi/mL		06/18/96	eal
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-155 by GEA	0	< 6.082e-05	uCi/mL		06/18/96	eal
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Mercury-203 by GEA	0	< 1.921e-05	uCi/mL		06/18/96	eal
Hg-203 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Iodine-131 by GEA	0	< 2.436e-05	uCi/mL		06/18/96	eal
I-131 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Potassium-40 by GEA	0	< 9.284e-04	uCi/mL		06/18/96	eal
K-40 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-22 by GEA	0	< 2.457e-05	uCi/mL		06/18/96	eal
Na-22 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-24 by GEA	0	< 1.656e-05	uCi/mL		06/18/96	eal
Na-24 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Niobium-94 by GEA	0	< 2.041e-05	uCi/mL		06/18/96	eal
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-237 by GEA	0	< 1.476e-04	uCi/mL		06/18/96	eal
Np-237 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-239 by GEA	0	< 5.683e-05	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Sample #: S96P000086 Sample ID: BOHX42 [Continued]						
Np-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-233 by GEA	0	< 4.734e-05	uCi/mL		06/18/96	eal
Pa-233 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-234m by GEA	0	< 3.441e-05	uCi/mL		06/18/96	eal
Pa-234m GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-212 by GEA	0	< 4.486e-05	uCi/mL		06/18/96	eal
Pb-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-214 by GEA	0	< 1.149e-04	uCi/mL		06/18/96	eal
Pb-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Plutonium-239 by GEA	0	< 1.919e-01	uCi/mL		06/18/96	eal
Pu-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-224 by GEA	0	< 4.621e-04	uCi/mL		06/18/96	eal
Ra-224 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-226 by GEA	0	< 4.274e-04	uCi/mL		06/18/96	eal
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ruthenium-103 by GEA	0	< 2.045e-05	uCi/mL		06/18/96	eal
Ru-103 GEA Rel % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Ru/Rh-106 by GEA	0	< 4.328e-04	uCi/mL		06/18/96	eal
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Selenium-75 by GEA	0	< 3.023e-05	uCi/mL		06/18/96	eal
Se-75 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Tin-113 by GEA	0	< 3.434e-05	uCi/mL		06/18/96	eal
Sn-113 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Strontium-85 by GEA	0	< 2.613e-05	uCi/mL		06/18/96	eal
Sr-85 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Thorium-228 by GEA	0	< 1.576e-03	uCi/mL		06/18/96	eal
Th-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-229 by GEA	0	< 6.639e-05	uCi/mL		06/18/96	eal
Th-229 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-234 by GEA	0	< 8.867e-04	uCi/mL		06/18/96	eal
Th-234 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thallium-208 by GEA	0	< 2.802e-04	uCi/mL		06/18/96	eal
Tl-208 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium/Thorium-233 by GEA	0	< 1.489e-02	uCi/mL		06/18/96	eal
U/Th-233 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium-235 by GEA	0	< 2.622e-05	uCi/mL		06/18/96	eal
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Yttrium-88 by GEA	0	< 2.565e-05	uCi/mL		06/18/96	eal
Y-88 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Zr/Nb-95 by GEA	0	< 3.938e-05	uCi/mL		06/18/96	eal
Zr/Nb-95 GEA Rel % Count. Err	0	n/a	% Ct. Error		06/18/96	eal
Sample #: S96P000087 Sample ID: BOHX43						
Actinium-228 by GEA	0	< 1.002e-04	uCi/mL		06/18/96	eal
Ac-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Alpha in Liquid Samples	0	7.45E-04	uCi/mL 7.45×10^{-2}		06/19/96	dgg
Alpha Liq.- Rel. % Count Error	0	2.74E+00	% Ct. Error		06/19/96	dgg
Americium-241 by GEA	0	< 4.394e-04	uCi/mL		06/18/96	eal
Am-241 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Americium-243 by GEA	0	< 1.025e-04	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Sample #: S96P000087 Sample ID: BOHX43 [Continued]

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Am-243 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Beta in Liquid Samples	0	6.44E-02	uCi/mL	4.32x10⁴	06/19/96	dgg
Beta Liq.- Rel. % Count Error	0	2.07E-01	% Ct. Error		06/19/96	dgg
Bismuth-212 by GEA	0	< 3.750e-04	uCi/mL		06/18/96	eal
Bi-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Bismuth-214 by GEA	0	< 1.136e-04	uCi/mL		06/18/96	eal
Bi-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Cadmium-109 by GEA	0	< 1.228e-03	uCi/mL		06/18/96	eal
Cd-109 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ce/Pr-144 by GEA	0	< 6.107e-04	uCi/mL		06/18/96	eal
Ce/Pr-144 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-56 by GEA	0	< 2.349e-05	uCi/mL		06/18/96	eal
Co-56 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-57 by GEA	0	< 4.042e-05	uCi/mL		06/18/96	eal
Co-57 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cobalt-60 by GEA	0	< 2.871e-05	uCi/mL		06/18/96	eal
Co-60 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-134 by GEA	0	< 4.758e-05	uCi/mL		06/18/96	eal
Cs-134 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Cesium-137 by GEA	0	2.130e-02	uCi/mL	2.13x10⁴	06/18/96	eal
Cs-137 GEA Rel. % Count Error	0	1.50	% Ct. Error		06/18/96	eal
Europium-152 by GEA	0	< 8.134e-05	uCi/mL		06/18/96	eal
Eu-152 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-154 by GEA	0	< 5.834e-05	uCi/mL		06/18/96	eal
Eu-154 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Europium-155 by GEA	0	< 1.677e-04	uCi/mL		06/18/96	eal
Eu-155 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Mercury-203 by GEA	0	< 6.201e-05	uCi/mL		06/18/96	eal
Hg-203 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Iodine-131 by GEA	0	< 7.454e-05	uCi/mL		06/18/96	eal
I-131 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Potassium-40 by GEA	0	< 8.997e-04	uCi/mL		06/18/96	eal
K-40 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-22 by GEA	0	< 2.014e-05	uCi/mL		06/18/96	eal
Na-22 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Sodium-24 by GEA	0	< 1.982e-05	uCi/mL		06/18/96	eal
Na-24 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Niobium-94 by GEA	0	< 2.271e-05	uCi/mL		06/18/96	eal
Nb-94 GEA Rel % Counting Error	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-237 by GEA	0	< 3.743e-04	uCi/mL		06/18/96	eal
Np-237 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Neptunium-239 by GEA	0	< 1.577e-04	uCi/mL		06/18/96	eal
Np-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-233 by GEA	0	< 1.389e-04	uCi/mL		06/18/96	eal
Pa-233 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Protactinium-234m by GEA	0	< 5.306e-05	uCi/mL		06/18/96	eal
Pa-234m GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-212 by GEA	0	< 1.164e-04	uCi/mL		06/18/96	eal
Pb-212 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Lead-214 by GEA	0	< 3.021e-04	uCi/mL		06/18/96	eal

SAMPLE INQUIRY by GROUP

Company Name: PUREX Programs Westinghouse Hanford Company Project Code: U3 Group #: 96

Parameter	Rep	Result	Unit	%Recov	Date	Analyst
Sample #: S96P000087 Sample ID: BOHX43 [Continued]						
Pb-214 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Plutonium-239 by GEA	0	< 5.575e-01	uCi/mL		06/18/96	eal
Pu-239 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-224 by GEA	0	< 1.290e-03	uCi/mL		06/18/96	eal
Ra-224 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Radium-226 by GEA	0	< 1.278e-03	uCi/mL		06/18/96	eal
Ra-226 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Ruthenium-103 by GEA	0	< 6.930e-05	uCi/mL		06/18/96	eal
Ru-103 GEA Rel % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Ru/Rh-106 by GEA	0	< 9.131e-04	uCi/mL		06/18/96	eal
Ru/Rh-106 GEA Rel. % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Selenium-75 by GEA	0	< 8.328e-05	uCi/mL		06/18/96	eal
Se-75 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Tin-113 by GEA	0	< 1.033e-04	uCi/mL		06/18/96	eal
Sn-113 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Strontium-85 by GEA	0	< 6.957e-05	uCi/mL		06/18/96	eal
Sr-85 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Thorium-228 by GEA	0	< 3.910e-03	uCi/mL		06/18/96	eal
Th-228 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-229 by GEA	0	< 1.781e-04	uCi/mL		06/18/96	eal
Th-229 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thorium-234 by GEA	0	< 2.527e-03	uCi/mL		06/18/96	eal
Th-234 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Thallium-208 by GEA	0	< 8.152e-04	uCi/mL		06/18/96	eal
Tl-208 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium/Thorium-233 by GEA	0	< 4.681e-02	uCi/mL		06/18/96	eal
U/Th-233 GEA Rel % Count Err	0	n/a	% Ct. Error		06/18/96	eal
Uranium-235 by GEA	0	< 7.793e-05	uCi/mL		06/18/96	eal
U-235 GEA Rel % Counting Err	0	n/a	% Ct. Error		06/18/96	eal
Yttrium-88 by GEA	0	< 1.484e-05	uCi/mL		06/18/96	eal
Y-88 GEA Rel. % Count Error	0	n/a	% Ct. Error		06/18/96	eal
Zr/Nb-95 by GEA	0	< 5.770e-05	uCi/mL		06/18/96	eal
Zr/Nb-95 GEA Rel % Count. Err	0	n/a	% Ct. Error		06/18/96	eal

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

July 12, 1996

Attention: Karl Pool

Project number	:	519.136
Date Received by Lab	:	June 25, 1996
Number of Samples	:	Two (2)
Sample Type	:	Liquid
SDG Number	:	W01056
Data Deliverable	:	Summary

I. Introduction

On June 25, 1996, two (2) liquid samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
11452-001	B0HX42	60632401	Liquid	6/25/96
11452-002	B0HX43	60632402	Liquid	6/25/96

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: pH by EPA method 9040. TOC by EPA method 9060. VOA by EPA method 8240. TAL ICP Metals by EPA method 6010. Arsenic by EPA method 7060. Lead by EPA method 7421. Selenium by EPA method 7740. Mercury by EPA method 7470.

III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate and/or Sample Duplicate analyses were performed per the protocol for each analyte. pH analysis uses only Sample Duplicate for matrix QC.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

Shipping and Receiving
The chain of custody arrived at the laboratory stating the sampling date as 4/17/96 making the samples out of holding time. Per ROD-96-0044, the samples true sampling date is 6/17/96 and the samples were not out of holding time. This ROD supercedes ROD-96-0035.

General Reporting
The results are reported in mg/L for the TOC analysis and mg/kg or ug/kg for all other analyses due to sample matrix. The Density of both samples was determined to be 1.00 g/ml. This value can be used to convert each result to the desired units.

Volatiles
There are no comments or nonconformances associated with this analysis.

Westinghouse Hanford Company
July 12, 1996
Project Number: 519.136
SDG: W01056
Page 3

Metals
The matrix spike recovery in sample 11452-001 was outside the 80-120% limit for lead (137.5%) with an Relative Percent Difference for the Matrix Spike/Matrix Spike Difference of 39.4%. The associated data for lead was flagged with an "N".

Percent solids was not determined for the samples in SDG W01056. Due to software configuration, the CLP forms list solid sample result units as " dry weight" and % solids as " 100 ". The results on the forms are actually mg/Kg as is and are not corrected for percent solids. The figure of 100 was used as percent solids for calculation purposes only and does not represent measured solids content of the samples.

Wet Chemistry
The Relative Percent Difference could not be calculated for the TOC analysis due to the sample concentrations being below the detection limit.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
Quanterra Environmental Services, Inc.
e:\\sqlmc01\price5\abbydave\hanford\hanw1056.nar

DATA ANALYSIS

METALS

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID: BOHX42

Quanterra ID : 11452-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	5.3	MG/KG	U	20.0	1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	3.5	MG/KG	U	6.0	1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	0.21	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	0.05	MG/KG	U	0.50	1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	0.24	MG/KG	U	0.50	1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	185	MG/KG	B	500	1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	0.41	MG/KG	U	1.0	1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	0.48	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	0.56	MG/KG	U	2.5	1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	2.6	MG/KG	B	10.0	1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	20.9	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	0.12	MG/KG	U	1.5	1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	0.91	MG/KG	U	4.0	1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	182	MG/KG	U	500	1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	0.59	MG/KG	U	1.0	1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	13.4	MG/KG	B	500	1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	0.57	MG/KG	U	5.0	1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	0.65	MG/KG	U	2.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID: B0HX42

Quanterra ID : 11452-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	99	%REC			1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	103	%REC			1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	100	%REC			1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	100	%REC			1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	93	%REC			1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
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Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: B0HX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	99	%REC			1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	103	%REC			1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	101	%REC			1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	100	%REC			1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	99	%REC			1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	94	%REC			1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	102	%REC			1

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Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: BOHX43

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	5.3	MG/KG	U	20.0	1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	3.5	MG/KG	U	6.0	1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	0.44	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	0.05	MG/KG	U	0.50	1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	0.24	MG/KG	U	0.50	1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	602	MG/KG		500	1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	0.70	MG/KG	B	1.0	1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	0.48	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	2.5	MG/KG		2.5	1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	20.7	MG/KG		10.0	1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	42.2	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	0.68	MG/KG	B	1.5	1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	1.1	MG/KG	B	4.0	1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	182	MG/KG	U	500	1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	0.59	MG/KG	U	1.0	1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	2490	MG/KG		500	1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	0.57	MG/KG	U	5.0	1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	1.9	MG/KG	B	2.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
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Richland, WA 99352

Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCBLK105316-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	5.3	MG/KG	U	20.0	1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	3.5	MG/KG	U	6.0	1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	-0.13	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	0.05	MG/KG	U	0.50	1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	0.24	MG/KG	U	0.50	1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	2.1	MG/KG	U	500	1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	0.41	MG/KG	U	1.0	1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	0.48	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	0.56	MG/KG	U	2.5	1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	2.4	MG/KG	B	10.0	1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	-14.8	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	0.12	MG/KG	U	1.5	1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	0.91	MG/KG	U	4.0	1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	182	MG/KG	U	500	1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	0.59	MG/KG	U	1.0	1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	-11.4	MG/KG	B	500	1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	-0.87	MG/KG	B	5.0	1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	0.65	MG/KG	U	2.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
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Project: 519.136

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCLCS105316-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK105316-1	06/27/96	06/27/96	76	%REC			1
Antimony	7440-36-0	QCBLK105316-1	06/27/96	06/27/96	128	%REC			1
Barium	7440-39-3	QCBLK105316-1	06/27/96	06/27/96	93	%REC			1
Beryllium	7440-41-7	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Cadmium	7440-43-9	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Calcium	7440-70-2	QCBLK105316-1	06/27/96	06/27/96	103	%REC			1
Chromium	7440-47-3	QCBLK105316-1	06/27/96	06/27/96	95	%REC			1
Cobalt	7440-48-4	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1
Copper	7440-50-8	QCBLK105316-1	06/27/96	06/27/96	96	%REC			1
Iron	7439-89-6	QCBLK105316-1	06/27/96	06/27/96	92	%REC			1
Magnesium	7439-95-4	QCBLK105316-1	06/27/96	06/27/96	93	%REC			1
Manganese	7439-96-5	QCBLK105316-1	06/27/96	06/27/96	95	%REC			1
Nickel	7440-02-0	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Potassium	7440-09-7	QCBLK105316-1	06/27/96	06/27/96	94	%REC			1
Silver	7440-22-4	QCBLK105316-1	06/27/96	06/27/96	106	%REC			1
Sodium	7440-23-5	QCBLK105316-1	06/27/96	06/27/96	97	%REC			1
Vanadium	7440-62-2	QCBLK105316-1	06/27/96	06/27/96	91	%REC			1
Zinc	7440-66-6	QCBLK105316-1	06/27/96	06/27/96	98	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Arsenic
Method: EPA 7060
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	0.11	MG/KG	U	1.0	1
BOHX42	11452-001MS	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	92	%REC			1
BOHX42	11452-001MSD	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	97	%REC			1
BOHX43	11452-002	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	0.11	MG/KG	U	1.0	1
NA	QCLCS105321-1	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	105	%REC			20
NA	QCBLK105321-1	Arsenic	7440-38-2	QCBLK105321-1	06/27/96	06/28/96	0.11	MG/KG	U	1.0	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
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Project: 519.136

Category: Lead
Method: EPA 7421
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	0.16	MG/KG	BN	0.30	1
BOHX42	11452-001MS	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	138	%REC	N		1
BOHX42	11452-001MSD	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	92	%REC			1
BOHX43	11452-002	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	2.9	MG/KG	N	0.30	1
NA	QCLCS105321-1	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	103	%REC			10
NA	QCBLK105321-1	Lead	7439-92-1	QCBLK105321-1	06/27/96	06/27/96	0.12	MG/KG	U	0.30	1

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
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Project: 519.136

Category: Selenium
Method: EPA 7000 Series
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	0.13	MG/KG	U	0.50	1
BOHX42	11452-001MS	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	109	%REC			1
BOHX42	11452-001MSD	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	100	%REC			1
BOHX43	11452-002	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	0.13	MG/KG	U	0.50	1
NA	QCLCS105321-1	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	95	%REC			20
NA	QCBLK105321-1	Selenium	7782-49-2	QCBLK105321-1	06/27/96	06/28/96	0.13	MG/KG	U	0.50	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Mercury
Method: EPA 7470
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	0.05	MG/KG	U	0.20	1
BOHX42	11452-001MS	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	93	%REC			1
BOHX42	11452-001MSD	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	96	%REC			1
BOHX43	11452-002	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	0.05	MG/KG	U	0.20	1
NA	QCLCS105509-1	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	100	%REC			1
NA	QCBLK105509-1	Mercury	7439-97-6	QCBLK105509-1	06/28/96	06/28/96	0.05	MG/KG	U	0.20	1

WET CHEMISTRY

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: pH
Method: EPA 9040
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	pH	PH	QCBLK105343-1	06/27/96	06/27/96	6.48	PH		0.10	1
BOHX42	11452-001DUP	pH	PH	QCBLK105343-1	06/27/96	06/27/96	6.53	PH		0.10	1
BOHX43	11452-002	pH	PH	QCBLK105343-1	06/27/96	06/27/96	11.30	PH		0.10	1
NA	QCBLK105343-1	pH	PH	QCBLK105343-1	06/27/96	06/27/96	5.50	PH		0.10	1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Total Organic Carbon
Method: EPA 9060
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	1.00	MG/L	U	1.00	1
BOHX42	11452-001DUP	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	1.00	MG/L	U	1.00	1
BOHX42	11452-001MS	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	98	%REC			1
BOHX43	11452-002	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	48.9	MG/L		1.00	1
NA	QCBLK105350-1	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	1.00	MG/L	U	1.00	1
NA	QCLCS105350-1	Total Organic C	TOC	QCBLK105350-1	06/27/96	06/27/96	98	%REC			1

VOLATILE ORGANICS

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: BOHX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Bromomethane	74-83-9	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Vinyl Chloride	75-01-4	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Chloroethane	75-00-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Methylene Chloride	75-09-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Acetone	67-64-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Carbon Disulfide	75-15-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chloroform	67-66-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromodichloromethane	75-27-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Dibromochloromethane	124-48-1	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromoform	75-25-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
2-Hexanone	591-78-6	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Tetrachloroethene	127-18-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
EthylBenzene	100-41-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Styrene	100-42-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Xylene (total)	1330-20-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	103	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	101	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	114	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: BOHX42

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Quanterra ID : 11452-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	157	%REC			1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	106	%REC			1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	112	%REC			1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	98	%REC			1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	104	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	98	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	113	%REC			1

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID: BOHX42

Quanterra ID : 11452-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	155	%REC			1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	104	%REC			1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	112	%REC			1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	105	%REC			1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	98	%REC			1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	105	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	100	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	114	%REC			1

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID: B0HX43

Quanterra ID : 11452-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Bromomethane	74-83-9	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Vinyl Chloride	75-01-4	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Chloroethane	75-00-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Methylene Chloride	75-09-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Acetone	67-64-1	QCBLK105677-1	07/01/96	07/01/96	49	UG/KG		20	1
Carbon Disulfide	75-15-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chloroform	67-66-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromodichloromethane	75-27-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Dibromochloromethane	124-48-1	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromoform	75-25-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
2-Hexanone	591-78-6	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Tetrachloroethene	127-18-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
EthylBenzene	100-41-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Styrene	100-42-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Xylene (total)	1330-20-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Unknown	TIC-2	QCBLK105677-1	07/01/96	07/01/96	25	UG/KG	J		1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	100	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	111	%REC			1

Quanterra Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Client ID: NA

Quanterra ID : QCBLK105677-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Bromomethane	74-83-9	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Vinyl Chloride	75-01-4	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Chloroethane	75-00-3	QCBLK105677-1	07/01/96	07/01/96	10	UG/KG	U	10	1
Methylene Chloride	75-09-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Acetone	67-64-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Carbon Disulfide	75-15-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chloroform	67-66-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromodichloromethane	75-27-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Dibromochloromethane	124-48-1	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Bromoform	75-25-2	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
2-Hexanone	591-78-6	QCBLK105677-1	07/01/96	07/01/96	20	UG/KG	U	20	1
Tetrachloroethene	127-18-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
EthylBenzene	100-41-4	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Styrene	100-42-5	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Xylene (total)	1330-20-7	QCBLK105677-1	07/01/96	07/01/96	5	UG/KG	U	5	1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	99	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	106	%REC			1

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Volatiles
Method: EPA 8240
Matrix: LIQUID

Client ID: NA

Sample Date : NA
Receipt Date : NA
Report Date : 08/15/96

Quanterra ID : QCLCS105677-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK105677-1	07/01/96	07/01/96	147	%REC			1
Trichloroethene	79-01-6	QCBLK105677-1	07/01/96	07/01/96	103	%REC			1
Benzene	71-43-2	QCBLK105677-1	07/01/96	07/01/96	110	%REC			1
Toluene	108-88-3	QCBLK105677-1	07/01/96	07/01/96	102	%REC			1
Chlorobenzene	108-90-7	QCBLK105677-1	07/01/96	07/01/96	96	%REC			1
Toluene-d8 (SURR)	2037-26-5	QCBLK105677-1	07/01/96	07/01/96	104	%REC			1
Bromofluorobenzene (SURR)	460-00-4	QCBLK105677-1	07/01/96	07/01/96	100	%REC			1
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK105677-1	07/01/96	07/01/96	114	%REC			1

SAMPLE DATA AND LABORATORY ADMINISTRATION

RECORD OF DISPOSITION REV 1

ROD-96-0039
Record of Disposition No.

DATE: July 16, 1996

LABORATORY: Quanterra

PROJECT TITLE/SAF #: PUREX Vessels' Flush Solutions/96-016

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B0HX42, B0HX43

DESCRIPTION OF EVENT: The customer has requested the Mercury for the above listed samples be rerun with a detection limit of less than 0.20 mg/Kg. The customer has requested the reruns be on a Priority turnaround.

DISPOSITION OF SAMPLES: Quanterra is to rerun the Mercury for the above listed samples within the three business day priority data turnaround requirement. Quanterra can run the samples with a detection limit of less than 0.20 mg/Kg.

APPROVAL SIGNATURES:

S.M.Steele — July 16, 1996
SDLA Project Coordinator (Print/Sign Name) — Date

C.N.Villalobos — 8-6-96
Technical Representative (Print/Sign Name) — Date

Quanterra
Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 30, 1996

Attention: Karl Pool

Project number	:	519.136
Date Received by Lab	:	June 25, 1996
Number of Samples	:	Two (2)
Sample Type	:	Liquid
SDG Number	:	W01075
Data Deliverable	:	Summary

RECORD COPY

I. Introduction

On June 25, 1996, two (2) liquid samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. On July 16, 1996, additional Mercury analyses were requested on these samples. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
11452-001	B0HX42	60632401	Liquid	6/25/96
11452-002	B0HX43	60632402	Liquid	6/25/96

The results of the original analyses can be found with SDG W01056. This report contains only the results for the Mercury reanalysis.

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: Mercury by EPA method 7470.

Quanterra Environmental Services

Westinghouse Hanford Company
August 30, 1996
Project Number: 519.136
SDG: W01075
Page 2

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III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate and/or Sample Duplicate analyses were performed per the protocol for each analyte. pH analysis uses only Sample Duplicate for matrix QC.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

Shipping and Receiving
The chain of custody arrived at the laboratory stating the sampling date as 4/17/96 making the samples out of holding time. Per ROD-96-0044, the samples true sampling date is 6/17/96 and the samples were not out of holding time. This ROD supercedes ROD-96-0035.

Mercury
There are no comments or nonconformances associated with this analysis.

Quanterra Environmental Services

Westinghouse Hanford Company
August 30, 1996
Project Number: 519.136
SDG: W01075
Page 3

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I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
Quanterra Environmental Services, Inc.
e:\\sqdmo01\price$\abbydave\hanford\hanw1075.nar

Quanterra
Environmental Services

Quanterra-Richland
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 519.136

Category: Mercury
Method: EPA 7470
Matrix: LIQUID

Sample Date : 06/17/96
Receipt Date : 06/25/96
Report Date : 08/15/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHX42	11452-001	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	0.10	UG/L	U	0.20	1
BOHX42	11452-001MS	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	106	%REC			1
BOHX42	11452-001MSD	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	107	%REC			1
BOHX43	11452-002	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	4.1	UG/L		0.20	1
NA	QCLCS106918-1	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	110	%REC			1
NA	QCBLK106918-1	Mercury	7439-97-6	QCBLK106918-1	07/17/96	07/17/96	0.10	UG/L	U	0.20	1

WESTINGHOUSE HANFORD COMPANY
GENERATOR & WASTE ACCEPTANCE SERVICES

PREDETERMINATION REPORT

REQUEST #: 28230 DATE: August 27, 1996

SUBJECT	PRODUCT PREDETERMINATION						
TO	Carmen Villalobos	COMPANY	WHC				
PHONE	373-4753	ADDRESS	200 East				
FACILITY	PUREX		MSIN	S6-19			
ANALYST	Clay V. Hawkes		MSIN	T3-05	PHONE	372-0508	
REVIEWER	K.W. Chang 8/27/96						
cc							

This waste predetermination is based on the MSDS information for products/materials listed in the predetermination request and was performed according to current state and Federal law (WAC 173-303 and 40 CFR 261). For questions or comments, please contact the Generator & Waste Acceptance Services analyst above and reference the request #. Thank you for your interest in waste predetermination.

			REGULATED ?				
Item #	MSDS #	Product/Material	Unused Product	Used Product	Empty Container	Rags with 10% Product	Possible Waste Codes
1	Lab Analysis	PUREX Tank U3 Final Flush Solution	N	N	N	N	NONE

Comments: Based on Lab analysis and attached process knowledge from the above waste generator, the "PUREX U3 Final Flush Solution" does not designate as a Washington dangerous or extremely hazardous waste.

DISCLAIMER

This predetermination is believed accurate based on the information provided. Predeterminations are performed to assist generators in selecting less hazardous products. Since solid waste regulations are subject to constant revision, waste status may change without notice. *Waste designations must be performed on all wastes* by Generator & Waste Acceptance Services to assure proper disposal in the event products are spilled or contained within a waste matrix.

Clay,

The following should better address concerns for the presence of acetone in RCRA Sample BOHX43 collected from the PUREX Tank U3 final flush solution. Acetone, detected at 0.05 ppm for sample BOHX43, is not designated as unused discarded chemical material products or spent solvents.

No unused or spent solvent acetone was discharged into this tank. The use of acetone in the PUREX laboratory and other places in the plant was eliminated in 1989. However, it is most likely that some residual amount remained from that time. It is also possible that acetone is present as a degradation product from the organics used in the process, and acetone, as a degradation product, would not constitute a spent solvent.

In addition, per EPA's and Ecology's concurrence, any acetone in waste solutions, resulting from the past practice of returning analyzed sample solutions to the PUREX process, will not carry listed waste codes.

If you have any questions or need additional information, please contact me at 373-4753.

Thank you,
Carmen Villalobos

9653803

ATTACHMENT 2

LETTER FOR TRANSMITTAL TO ECOLOGY AND EPA

Mr. Michael A. Wilson
Program Manager
State of Washington
Department of Ecology
1315 W. 4th Avenue
Kennewick, Washington 99336

Dear Mr. Wilson:

TRANSMITTAL OF PLUTONIUM URANIUM EXTRACTION PLANT TANK U3 FLUSH ANALYTICAL RESULTS

Enclosed are laboratory analytical results conducted on the final flush for the Plutonium Uranium Extraction (PUREX) Plant Tank U3. These results are transmitted in accordance with U.S. Department of Energy, Richland Operations Office/Westinghouse Hanford Company agreement with State of Washington Department of Ecology and the U. S. Environmental Protection Agency.

This is the last of the analytical results from vessel flushes as defined in Westinghouse Hanford Company Supporting Document WHC-SD-EN-TI-283, Revision 0, "Data Quality Objectives for PUREX Deactivation Flushing."

A copy of the Predetermination Report, designating the final flush solutions based on the analytical results, is also included in the enclosure. The final flush for this tank was designated as non-dangerous waste.

If you have any questions, please contact L. D. Romine (376-4747) of my staff.

Sincerely,

J. E. Mecca, Director
Transition Programs Division

Enclosure:
Predetermination Report

cc: J. K. Bartz, Ecology
D. L. Duncan, EPA
D. G. Hamrick, WHC, w/o encl.
M. N. Jaraysi, Ecology
R. Jim, YIN, w/o encl.
G. J. LeBaron, WHC, w/o encl.
D. Powaukee, NPT, w/o encl.
J. Wilkinson, CTUIR, w/o encl.