START 9613446.2814 0044373 W0686 77 R

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford Incorporated
P.O. Box 1970
Richland, Washington 99352

October 10, 1995

Attention: Joan Kessner

JUN 1996 RECEIVED EDMC

OCT 1995 RECEIVED Data Log In

Project number	:	550.65
Date Received by Lab	:	August 24, 1995
Number of Samples	:	Two (2)
Sample Type	:	Solid
SDG Number	:	W0686
Data Deliverable	:	Summary

I. Introduction

On August 24, 1995, two (2) solid 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
9189-001	B0GHP3	50841402	Solid	08/24/95
9189-002	B0GHP2	50841401	Solid	08/24/95

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: Fluoride, Chloride, Phosphate, Nitrate, and Nitrite by EPA method 300.0. Nitrate/Nitrite by EPA method 353.1. Volatiles by EPA method 8240. Semi-volatiles by EPA method 8270. ICP metal by EPA method 6010. Arsenic by EPA method 7060. Lead by EPA method 7421. Mercury by EPA number 7471. Selenium by EPA method 7740. Thallium by EPA method 7841.

Quanterra
Environmental Services

III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Sample Duplicate analyses were performed per the protocol for each analyte.

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

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

Samples 9189-001 and -002 were resin bead samples, and thus were extracted using 2-gram aliquots for the Semi-volatiles analysis.

Sample 9189-001 was extracted with a Duplicate, Matrix Spike and a Matrix Spike Duplicate. All four extractions gave low recoveries for 2-flourobiphenyl and 2,4,6-tribromophenol surrogates. One extraction also gave a low nitrobenzene-d5 recovery. All four analyses are reported. The Matrix Spike and Matrix Spike Duplicate gave low recoveries for several analytes: 1,4-dichlorobenzene, 1,2,4-trichlorobenzene, acenaphthene, pentachlorophenol and pyrene.

Sample 9189-002 gave low recoveries for 2-flourobiphenyl and 2,4,6-tribromophenol surrogates. A duplicate of this sample gave similar results. Both analyses are reported.

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Environmental Services

Bechtel Hanford Incorporated
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The Matrix Spike and Matrix Spike Duplicate recoveries for sample 9198-001 were outside the acceptable limits for antimony and cadmium. The Matrix Spike Duplicate result was outside the acceptable limit for mercury. The serial dilution result for calcium was above the acceptable limit. The associated results for each analyte were flagged with the appropriate qualifier.

The Matrix Spike recovery was outside of the suggested QC limits of 75-125% on sample 9189-001 for the Nitrate/Nitrite analysis due to the sample concentration being much greater than the spike concentration.

The holding times were waived for the Nitrate, Nitrite and Phosphate analyses.

The Relative Percent Difference could not be calculated for the Fluoride, Chloride, Phosphate and Nitrite analyses due on sample 9189-001 and it's duplicate due to the values being less than the detection limits.

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
e:\\price$\abbydave\hanw0686.nar

Quanterra August 25, 1995 02:09 pm
Account: 10722 Project: 550.65 Quanterra-Richland QAS No. 892 Rev. 0
Master Sample Login: 9189

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 / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category	Rad Sample No. / (Container Numbers:% Filled)
9189-001	BOGHP3	Solid	22-AUG-95 08:40	24-AUG-95 13:45		28-SEP-95	FED-EX	3*	R4198-002
NOTE: RICHLAND ID 50841402, MATRIX=RESIN									
1	VI - Vial-40ml	AS/7060/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
3		CL/300.0/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175475:99 175476:99 175477:99)
3		FL/300.0/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175475:99 175476:99 175477:99)
1		HG/7471/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175478:98)
1		ICAP/6010/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
3		NO2/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
3		NO3/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
3		OPHOS/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
1		PB/7421/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
1		SE/7740/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
1		TL/7841/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
3		VOA/8240/Q4	S	COLD	21-SEP-95	05-SEP-95	109C		(175472:100 175473:100 175474:100)
3	PW - Plastic-4oz	BNA/8270/Q4	S	COLD	21-SEP-95	05-SEP-95	S15C		(175479:100 175480:100 175481:100)
1	PW - Plastic-2oz	NO3/353.1/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175482:100)
9189-001DUP	BOGHP3	Solid	22-AUG-95 08:40	24-AUG-95 13:45		28-SEP-95	FED-EX	3*	R4198-002
NOTE: RICHLAND ID 50841402, MATRIX=RESIN									
3	VI - Vial-40ml	CL/300.0/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175475:99 175476:99 175477:99)
3		FL/300.0/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175475:99 175476:99 175477:99)
3		NO2/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
3		NO3/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
3		OPHOS/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
1	PW - Plastic-2oz	NO3/353.1/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175482:100)
9189-001MS	BOGHP3	Solid	22-AUG-95 08:40	24-AUG-95 13:45		28-SEP-95	FED-EX	3*	R4198-002
NOTE: RICHLAND ID 50841402, MATRIX=RESIN									
1	VI - Vial-40ml	AS/7060/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
3		CL/300.0/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175475:99 175476:99 175477:99)
3		FL/300.0/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175475:99 175476:99 175477:99)
1		HG/7471/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C		(175478:98)
1		ICAP/6010/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
3		NO2/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
3		NO3/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
3		OPHOS/300.0/Q4	S	COLD	21-SEP-95	24-AUG-95	S15C		(175475:99 175476:99 175477:99)
1		PB/7421/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
1		SE/7740/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
1		TL/7841/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C		(175478:98)
3		VOA/8240/Q4	S	COLD	21-SEP-95	05-SEP-95	109C		(175472:100 175473:100 175474:100)

3*=Sample has not been rad screened.

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000005

Quanterra August 25, 1995 02:09 pm
Account: 10722 Project: 550.65 Quanterra-Richland QAS No. 892 Rev. 0
Master Sample Login: 9189

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 / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category / (Container Numbers:% Filled)	Rad Sample No.
Comments / Data:									
3	PW - Plastic-4oz	BNA/8270/Q4	S	COLD	21-SEP-95	05-SEP-95	S15C	(175479:100 175480:100 175481:100)	
1	PW - Plastic-2oz	NO3/353.1/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C	(175482:100)	
9189-001MSD	BOGHP3	Solid	22-AUG-95 08:40	24-AUG-95 13:45	28-SEP-95	FED-EX		3*	R4198-002
NOTE: RICHLAND ID 50841402, MATRIX=RESIN									
1	VI - Vial-40ml	AS/7060/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C	(175478:98)	
1		HG/7471/Q4	S	COLD	21-SEP-95	19-SEP-95	S15C	(175478:98)	
1		ICAP/6010/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C	(175478:98)	
1		PB/7421/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C	(175478:98)	
1		SE/7740/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C	(175478:98)	
1		TL/7841/Q4	S	COLD	21-SEP-95	18-FEB-96	S15C	(175478:98)	
3		VOA/8240/Q4	S	COLD	21-SEP-95	05-SEP-95	109C	(175472:100 175473:100 175474:100)	
3	PW - Plastic-4oz	BNA/8270/Q4	S	COLD	21-SEP-95	05-SEP-95	S15C	(175479:100 175480:100 175481:100)	
9189-002	BOGHP2	Solid	21-AUG-95 12:25	24-AUG-95 13:45	28-SEP-95	FED-EX		3*	R4198-001
NOTE: RICHLAND ID 50841401, MATRIX=RESIN									
1	VI - Vial-40ml	AS/7060/Q4	S	COLD	21-SEP-95	17-FEB-96	S15C	(175489:98)	
3		CL/300.0/Q4	S	COLD	21-SEP-95	18-SEP-95	S15C	(175486:99 175487:99 175488:99)	
3		FL/300.0/Q4	S	COLD	21-SEP-95	18-SEP-95	S15C	(175486:99 175487:99 175488:99)	
1		HG/7471/Q4	S	COLD	21-SEP-95	18-SEP-95	S15C	(175489:98)	
1		ICAP/6010/Q4	S	COLD	21-SEP-95	17-FEB-96	S15C	(175489:98)	
3		NO2/300.0/Q4	S	COLD	21-SEP-95	23-AUG-95	S15C	(175486:99 175487:99 175488:99)	
3		NO3/300.0/Q4	S	COLD	21-SEP-95	23-AUG-95	S15C	(175486:99 175487:99 175488:99)	
3		OPHOS/300.0/Q4	S	COLD	21-SEP-95	23-AUG-95	S15C	(175486:99 175487:99 175488:99)	
1		PB/7421/Q4	S	COLD	21-SEP-95	17-FEB-96	S15C	(175489:98)	
1		SE/7740/Q4	S	COLD	21-SEP-95	17-FEB-96	S15C	(175489:98)	
1		TL/7841/Q4	S	COLD	21-SEP-95	17-FEB-96	S15C	(175489:98)	
3		VOA/8240/Q4	S	COLD	21-SEP-95	04-SEP-95	109C	(175483:100 175484:100 175485:100)	
3	PW - Plastic-4oz	BNA/8270/Q4	S	COLD	21-SEP-95	04-SEP-95	S15C	(175490:100 175491:100 175492:100)	
1	PW - Plastic-2oz	NO3/353.1/Q4	S	COLD	21-SEP-95	18-SEP-95	S15C	(175493:100)	

9613446.2818

000006

3*=Sample has not been rad screened.

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: Doug Bowers	Company Contact: C.V. Vittreich	Telephone No.: 376-1862
Project Designation: 200 UP-1 IX spent resin	Sampling Location: 200 west	SAF No.: B95-014
Ice Chest No.: SNL-503	Field Logbook No.	Method of Shipment: Hand deliver
Shipped To: Quanterra	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks: Unknown		
Special Handling and/or Storage: Cool to 4 C		

SAMPLE ANALYSIS: 508414 SDL W06686

Preservative	none	none	none	none	none	none	none	none
Type of Container	~~A~~ G/G	aGs	aG	aGs	~~A~~ HG G	P/G	G/P	G/P
No. of Container(s)	1	3	3	3	1	1	1	1
Volume	40 ml	40 ml	60 ml	40 ml	~~20 ml~~ 40 ml	1 L	20 ml	20 ml
	See Item #1 below	VOA	Semi-VOA	Anions F,Cl, PO4,NO2 ,NO3	NO2-NO3	See Item #2 below	Activity Scan	Rad Screening

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0GHPZ 01	~~R~~ RESIN	8/21/95	1225	X	X	X	X	X	X	X							
				100	3X100	3X100	3X100	100									

508415

HG 8/21/95

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By: STEVEN J GUREY, ERC, Date/Time 8/21/95 1450	Received By: ERC, Date/Time 1450	
Relinquished By: B.Buttron, ERC, Date/Time 8-24-95	Received By: B Buttron, Quanterra, Date/Time 8-24-95	
Relinquished By: Date/Time	Received By: Karen Dettinger, Date/Time 13:45	
Relinquished By: Date/Time	Received By: Date/Time	

SPECIAL INSTRUCTIONS

Data Deliverable-Summary
Sample analysis for phosphate, nitrate, and nirtite by EPA 300.0 is being requested for information only. The ERC contractor recognizes that the 48-hour hold time will not be met.
Sample matrix is - ion exchange resin.
For VOA and semi-VOA analysis, the resin material should be treated as a soil.
The samples should come from the mast contaminated section of the material.
Item #1 - ICP Metals -TAL AA Metals Arsenic,Lead,Selenium,Thallium Mercury Item #2 Total Alpha Total Beta,Tc-99,Total Uranium,Gamma Spec.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9513116.2015

000008

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: Doug Bowers / K. Trapp	Company Contact: C.W. Wittreich	Telephone No.: 376-1862
Project Designation: 200 UP-1 IX spent resin	Sampling Location: 200 west	SAF No.: 895-014
Ice Chest No.: SOX-503	Field Logbook No.: EL-126	Method of Shipment: Hand deliver
Shipped To: Quanterra	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks: Unknown		
Special Handling and/or Storage: Cool to 4 C		

SAMPLE ANALYSIS: 508414 SPL W00686

Sample No.	Matrix*	Date Sampled	Time Sampled															
Preservative				none	none	none	none	none	none	none	none							
Type of Container				A P/G	aGs	aG	aGs	A P	P/G	G/P	G/P							
No. of Container(s)				1	3	3	3	1	1	1	1							
Volume				40 ml	40 mL	60 mL	40 mL	20 mL	1 L	20 mL	20 mL							
				See Item #1 below	VOA	Semi-VOA	Anions F,Cl, PO4,NO2 ,NO3	NO2-NO3 2x40 mL	See Item #2 below 508415	Activity Scan	Rad Screening							
BOGHP3 02	X	8/22/95	0840	X	X	X	X	X	X	X								
				100	3X100	3X100	3X100	100										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K. Trapp / K. Trapp	8/22/95 1047
Received By	EPA B. Whitten	8-22-95 1047
Relinquished By	B. Whitten	8-24-95
Received By	Quanterra Karen Ostrelung	8-24-95 1345
Relinquished By		
Received By	<100C	
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS

Data Deliverable-Summary
Sample analysis for phosphate, nitrate, and nirtite by EPA 300.0 is being requested for information only. The ERC contractor recognizes that the 48-hour hold time will not be met.
Sample matrix is - ion exchange resin.
For VOA and semi-VOA analysis, the resin material should be treated as a soil.
The samples should come from the most contaminated section of the material.
Item #1 - ICP Metals -TAL AA Metals Arsenic,Lead,Selenium,Thallium Mercury Item #2 Total Alpha Total Beta,Tc-99,Total Uranium,Gamma Spec.

Matrix*

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

000009

9613WG.2800

4198- to Joe 8/25 550.65 9189

Client Sample Screening Results

R3 8/24/95

24-Aug-95

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
WHC B0GHP2		8/24/95 1:45:00 PM	QUAD22C	8/24/95 3:17:43 PM	B0GHP2	30	388	12.8820833	12684	421.70875
	SOLID		Bkg:	8/24/95 4:45:19 AM	BKG	800	41	0.05125	873	1.09125
Anl Date: 8/24/95	Tot Sa, Alq: 7.18E+02	, 1.00E-02	Alp; (Dpm/ 2.33E+01	(uCi/ 7.52E+02	(pCi/ 1.05E+06	± 6.2E+04	CAT III	4.8E-05	Lab Alq Lig	R3 8/24
Ppt mg: 0.001	Units: g	, mg	Bet; Alq): 7.76E+02	Sa): 2.51E+04	Lig): 3.50E+07	± 3.1E+05		2.9E-06		
Anl Date: 8/24/95	Tot Sa, Alq: 7.18E+02	, 1.53E+01	Alp; (Dpm/ 2.81E+01	(uCi/ 5.94E-01	(pCi/ 8.27E+02	± 5.0E+01	CAT III	6.0E-02	Lab Alq Lig	
Ppt mg: 15.3	Units: g	, mg	Bet; Alq): 8.10E+02	Sa): 1.71E+01	Lig): 2.38E+04	± 2.1E+02		4.2E-03		
WHC B0GHP3		8/24/95 1:45:00 PM	QUAD22D	8/24/95 3:17:43 PM	B0GHP3	30	344	11.4116667	11960	397.69167
	SOLID		Bkg:	8/24/95 4:45:19 AM	BKG	800	44	0.055	780	0.975
Anl Date: 8/24/95	Tot Sa, Alq: 1.00E+00	, 1.00E-03	Alp; (Dpm/ 2.04E+01	(uCi/ 9.18E+00	(pCi/ 9.18E+06	± 5.9E+05	CAT III	5.4E-06	Lab Alq Lig	R3 8/24
Ppt mg: 0.001	Units: g	, mg	Bet; Alq): 7.38E+02	Sa): 3.32E+02	Lig): 3.32E+08	± 3.0E+06		3.0E-07		
Anl Date: 8/24/95	Tot Sa, Alq: 5.84E+02	, 1.99E+01	Alp; (Dpm/ 2.58E+01	(uCi/ 3.41E-01	(pCi/ 5.83E+02	± 3.8E+01	CAT III	8.6E-02	Lab Alq Lig	
Ppt mg: 19.9	Units: g	, mg	Bet; Alq): 7.74E+02	Sa): 1.02E+01	Lig): 1.75E+04	± 1.6E+02		5.7E-03		
WHC B0GHP4		8/24/95 1:45:00 PM	QUAD23A	8/24/95 3:17:47 PM	B0GHP4	30	30	0.96125	122	3.0929167
	LIQUID		Bkg:	8/24/95 4:45:28 AM	BKG	800	31	0.03875	779	0.97375
Anl Date: 8/24/95	Tot Sa, Alq: 1.00E+00	, 1.00E+01	Alp; (Dpm/ 3.00E+00	(uCi/ 1.35E-04	(pCi/ 1.35E+02	± 3.0E+01	CAT I	1.8E-01	Lab Alq Lig	
Ppt mg: 7.6	Units: L	, ml	Bet; Alq): 5.38E+00	Sa): 2.42E-04	Lig): 2.42E+02	± 3.1E+01		2.1E-01		
WHC TEDF082495001		8/24/95 10:54:00 AM	QUAD22B	8/24/95 3:17:43 PM	TEDF082495001	30	3	0.03375	36	0.22375
	LIQUID		Bkg:	8/24/95 4:45:19 AM	BKG	800	53	0.06625	781	0.97625
Anl Date: 8/24/95	Tot Sa, Alq: 5.00E-01	, 1.00E+01	Alp; (Dpm/ 1.08E-01	(uCi/ 2.43E-06	(pCi/ 4.86E+00	± 2.3E+01	CAT I	5.1E+00	Lab Alq Lig	
Ppt mg: 9.4	Units: L	, ml	Bet; Alq): 4.12E-01	Sa): 9.27E-06	Lig): 1.85E+01	± 1.8E+01		2.7E+00		

001

002

00000010

9613446.2821

9613446.2822

SAMPLE STATUS REPORT FOR N 5822. RAD SCREEN BOGHP2 TIME: 8/23/95 7:52
DISPATCHED: 8/18/95 9:49 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/23/95 7:48

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
4271	TOT-ACT	7.51282E 03 pCi/G	N	Y	XR5706

END OF REPORT

BOGHP2
BOGHP3
BW
8-24-95

9613446.2823

Emergency Contact 509-373-4800 ERWG

OFFSITE RADIOACTIVE SHIPMENT RECORD

- EXTERIOR INSPECTION PERMITTED -

23654

SHIPPING INST.

SHIP TO:
Company: Quantum
Address: 2850 Geo Washington Way
City, State, Zip: Richland WA 99352
Attention: Karen Ackerberg

Contractor: ☒ BHI ☐ PNL ☐ KEH ☐ WHC
Site Carrier: Bill Wilson
PR No. 84751 Veh. No. 10-2558

Ship: ☒ Prepaid ☐ Collect Via:
☒ Motor-Pul. ☐ Air Psgr.
☐ Excl. Use ☐ Air Cargo
☒ DOE Veh. ☐ Mail
☐ UPS Sur. ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name — UN Number
Radioactive Material,

1. Empty Packages ☐ UN 2908
2. Low Specific Activity, n.o.s ☐ UN 2912
3. Limited quantity, n.o.s. ☐ UN 2910
4. N.O.S. ☐ UN 2982
5. Fissile n.o.s. ☐ UN 2918
6. Special Form, n.o.s. ☐ UN 2974
7. Instruments & Articles ☐ UN 2911
8. Excepted Package ☒ UN 2910

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act. (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:
Physical Form: ☒ Solid ☐ Liquid ☐ Gas
Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate
Other

TYPE PACKAGE: ☒ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly Cooler

FISSILE CLASS: ☒ Non Fissile ☒ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III
Grams Fissile

SNM: ☒ No ☐ Yes ☐ <1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified
Consignee authorized to receive this qty ☒
Sig. Security Svc. Req. ☐ NA ☒
Pu, EU > 1 g ☐ N/A NU, DU > 1 Kg ☐ N
Security Escorts Req. ☐ Not. Req. ☒
External Cask Temperature N/A ☒
(Max. 122° F LTL, 180° F Ex. Use)

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes
Complies with D. O. T. packaging marking and labeling requirements ☐ N/A ☒ Yes
Container acceptability documented (incl. 7A cert.) ☐ N/A ☐ Yes

Container examined: No evidence of deterioration or damage ☒ Yes
QA Inspection Current ☐ Yes ☒ N/A Seals required ☒ No ☐ Yes
Shipping Doc. 49 CFR Authorization No. N/A

No. Pkgs.	Model Package	COC/Spec. No.	Serial No.	Seal No.	Isotopes	Curies/Pkg	T.I.	Gr. Wt.
1	Strong Tight	N/A	N/A	N/A	Tc 99, U238, U235	35 uC	N/A	51 lbs
Pig-Cooler # SMX-503 contains sample vials of ion exchange resin.								
Vials are bagged & filled on ice with vermiculite for cushioning								
Samples # BOG-HP2 and BOG-HP3								
(Shipper may describe package in detail on one of unused lines above)					TOTAL	35 uC	N/A	51 lbs

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.

Certifier's Signature: [signature] Date: 8/24/95 Organization: Field Sampling Complete Cost Code (inc. end function): XR 5331

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)
Dose Rate at 1 Meter from Surface of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)
Smears of Outer Container: ☒ ≤22 dpm βγ/cm² ☒ ≤2.2 dpm α/cm²
TRUCK LOAD OR EXCLUSIVE USE
Surface: ☐ ≤ 200 mrem/hr (N + βγ)
@ 6 feet: ☐ ≤ 10 mrem/hr (N + βγ) N/A
@ Cab or Sleeper ☐ ≤ 2.0 mrem/hr (N + βγ) SEH

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: [signature] Bldg. 4701-C Survey No. RAPA-7721 Date 8-24-95

AUTHORIZATION FOR SHIPMENT

APPROVAL

AIR TRANSPORT CERTIFICATION ▸ Cargo Only: ☐ Danger Labels Applied
Passenger: ☐ 1. Ltd. Qty. ☐ 2. ≤3 T.I ☐ 3. Research or Medical Diagnosis ☐ 4. Human Medical Research
Pkg. Dimensions

Traffic has inspected and verified preshipment compliance to DOT regulations.

Authorized Signature ▸ [signature] Printed Name ▸ Ronald L. Clausen Date ▸ 8-24-95

APPROVED FOR OFFSITE SHIPMENT

TRAFFIC

B. L. No. RMW-9543 Date Shipped 8-24-95 E. T. A. 8-24-95 Routing BHI Vehicle ☐ N/A
Placards ☐ Yes ☒ No
Surveyed By N/A Date N/A Approved for Shipment Westinghouse Hanford Company [signature] Date 8-24-95
Route Plan ☐ Yes ☒ No

Rec'd By: Karen Ackerberg Quantum Date: 8-24-95 13:45

SA-6000-088 (10/88)

0050012

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8-24-95 1345 Client Name BHI

Project/Client # B95-014 Batch or Case # _____

Cooler ID (if noted on outside of cooler) 5M2503

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 [ ] No [X]
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: 26
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 _____
12. Have any anomalies been identified above? Yes [ ] No [X]
13. Memos have been initiated for all anomalies identified above? Yes [ ]

Printed Name/Signature Karen [illegible] Date/Time 8-24-95

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

9613446.2825

0000014

9613446.2826

Quanterra
Environmental Services

COPIED TO: BW&WP
DATE: 8-25-95
TIME: 1105
BY: Jm

Work Order No.: 9189

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland
Date: 8-25-95 0845
Project No: 550.65
Initiated by: [illegible]
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 9633
Client Sample Numbers Affected: Entire Login

Condition/Variance (Check all that apply): Circle Number to Denote that Item was Evaluated. "NA" = "Not Applicable".

1. NA Not enough sample received for proper analysis.
   Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: 2°C rad/4°C
   - ☐ pH _____
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below):
    Shipping containers not rad surveyed.
    238 0112 497

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____
☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) [illegible] Date: 8-25-95
Project Management Review: Abby Wilder Date: 8/28/95

0000015

5141

9613446.2827

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: VOA-TCL
Method: EPA 8240
Matrix: SOLID

Client ID: BOGHP2

Sample Date : 08/21/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK77160-1	09/01/95	09/01/95	1200	UG/KG	U	1200	125
Bromomethane	74-83-9	QCBLK77160-1	09/01/95	09/01/95	1200	UG/KG	U	1200	125
Vinyl Chloride	75-01-4	QCBLK77160-1	09/01/95	09/01/95	1200	UG/KG	U	1200	125
Chloroethane	75-00-3	QCBLK77160-1	09/01/95	09/01/95	1200	UG/KG	U	1200	125
Methylene Chloride	75-09-2	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Acetone	67-64-1	QCBLK77160-1	09/01/95	09/01/95	1700	UG/KG	J	12000	125
Carbon Disulfide	75-15-0	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,1-Dichloroethene	75-35-4	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,1-Dichloroethane	75-34-3	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,2-Dichloroethene (total)	540-59-0	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Chloroform	67-66-3	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,2-Dichloroethane	107-06-2	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
2-Butanone	78-93-3	QCBLK77160-1	09/01/95	09/01/95	860	UG/KG	J	12000	125
1,1,1-Trichloroethane	71-55-6	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Carbon Tetrachloride	56-23-5	QCBLK77160-1	09/01/95	09/01/95	1100	UG/KG		620	125
Bromodichloromethane	75-27-4	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,2-Dichloropropane	78-87-5	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
cis-1,3-Dichloropropene	10061-01-5	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Trichloroethene	79-01-6	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Dibromochloromethane	124-48-1	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,1,2-Trichloroethane	79-00-5	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Benzene	71-43-2	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
trans-1,3-Dichloropropene	10061-02-6	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Bromoform	75-25-2	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
4-Methyl-2-Pentanone	108-10-1	QCBLK77160-1	09/01/95	09/01/95	6200	UG/KG	U	6200	125
2-Hexanone	591-78-6	QCBLK77160-1	09/01/95	09/01/95	6200	UG/KG	U	6200	125
Tetrachloroethene	127-18-4	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Toluene	108-88-3	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Chlorobenzene	108-90-7	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
EthylBenzene	100-41-4	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Styrene	100-42-5	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Xylene (total)	1330-20-7	QCBLK77160-1	09/01/95	09/01/95	620	UG/KG	U	620	125
Toluene-d8 (SURR)	2037-26-5	QCBLK77160-1	09/01/95	09/01/95	92	%REC			125
Bromofluorobenzene (SURR)	460-00-4	QCBLK77160-1	09/01/95	09/01/95	90	%REC			125
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK77160-1	09/01/95	09/01/95	95	%REC			125

9613446.2828

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: VOA-TCL
Method: EPA 8240
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID: BOGHP3

Quanterra ID : 9189-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK77162-1	09/01/95	09/01/95	50	UG/KG	U	50	5
Bromomethane	74-83-9	QCBLK77162-1	09/01/95	09/01/95	50	UG/KG	U	50	5
Vinyl Chloride	75-01-4	QCBLK77162-1	09/01/95	09/01/95	50	UG/KG	U	50	5
Chloroethane	75-00-3	QCBLK77162-1	09/01/95	09/01/95	50	UG/KG	U	50	5
Methylene Chloride	75-09-2	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Acetone	67-64-1	QCBLK77162-1	09/01/95	09/01/95	120	UG/KG	BJ	500	5
Carbon Disulfide	75-15-0	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
1,1-Dichloroethene	75-35-4	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
1,1-Dichloroethane	75-34-3	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
1,2-Dichloroethene (total)	540-59-0	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Chloroform	67-66-3	QCBLK77162-1	09/01/95	09/01/95	35	UG/KG		25	5
1,2-Dichloroethane	107-06-2	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
2-Butanone	78-93-3	QCBLK77162-1	09/01/95	09/01/95	500	UG/KG	U	500	5
1,1,1-Trichloroethane	71-55-6	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Carbon Tetrachloride	56-23-5	QCBLK77162-1	09/01/95	09/01/95	960	UG/KG		25	5
Bromodichloromethane	75-27-4	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
1,2-Dichloropropane	78-87-5	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
cis-1,3-Dichloropropene	10061-01-5	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Trichloroethene	79-01-6	QCBLK77162-1	09/01/95	09/01/95	27	UG/KG		25	5
Dibromochloromethane	124-48-1	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
1,1,2-Trichloroethane	79-00-5	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Benzene	71-43-2	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
trans-1,3-Dichloropropene	10061-02-6	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Bromoform	75-25-2	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
4-Methyl-2-Pentanone	108-10-1	QCBLK77162-1	09/01/95	09/01/95	250	UG/KG	U	250	5
2-Hexanone	591-78-6	QCBLK77162-1	09/01/95	09/01/95	250	UG/KG	U	250	5
Tetrachloroethene	127-18-4	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Toluene	108-88-3	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Chlorobenzene	108-90-7	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
EthylBenzene	100-41-4	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Styrene	100-42-5	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Xylene (total)	1330-20-7	QCBLK77162-1	09/01/95	09/01/95	25	UG/KG	U	25	5
Unknown	TIC-2	QCBLK77162-1	09/01/95	09/01/95	74	UG/KG	J		5
Toluene-d8 (SURR)	2037-26-5	QCBLK77162-1	09/01/95	09/01/95	107	%REC			5
Bromofluorobenzene (SURR)	460-00-4	QCBLK77162-1	09/01/95	09/01/95	94	%REC			5
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK77162-1	09/01/95	09/01/95	110	%REC			5

9613446.2829

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: VOA-TCL
Method: EPA 8240
Matrix: SOLID

Client ID: BOGHP3

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK77162-1	09/01/95	09/01/95	97	%REC			5
Trichloroethene	79-01-6	QCBLK77162-1	09/01/95	09/01/95	98	%REC			5
Benzene	71-43-2	QCBLK77162-1	09/01/95	09/01/95	99	%REC			5
Toluene	108-88-3	QCBLK77162-1	09/01/95	09/01/95	105	%REC			5
Chlorobenzene	108-90-7	QCBLK77162-1	09/01/95	09/01/95	96	%REC			5
Toluene-d8 (SURR)	2037-26-5	QCBLK77162-1	09/01/95	09/01/95	106	%REC			5
Bromofluorobenzene (SURR)	460-00-4	QCBLK77162-1	09/01/95	09/01/95	94	%REC			5
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK77162-1	09/01/95	09/01/95	110	%REC			5

9613446.2830

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: VOA-TCL
Method: EPA 8240
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID: BOGHP3

Quanterra ID : 9189-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK77162-1	09/01/95	09/01/95	100	%REC			5
Trichloroethene	79-01-6	QCBLK77162-1	09/01/95	09/01/95	100	%REC			5
Benzene	71-43-2	QCBLK77162-1	09/01/95	09/01/95	118	%REC			5
Toluene	108-88-3	QCBLK77162-1	09/01/95	09/01/95	110	%REC			5
Chlorobenzene	108-90-7	QCBLK77162-1	09/01/95	09/01/95	97	%REC			5
Toluene-d8 (SURR)	2037-26-5	QCBLK77162-1	09/01/95	09/01/95	113	%REC			5
Bromofluorobenzene (SURR)	460-00-4	QCBLK77162-1	09/01/95	09/01/95	92	%REC			5
1,2-Dichloroethane-d4 (SURR)	17070-07-0	QCBLK77162-1	09/01/95	09/01/95	107	%REC			5

9613446.2831

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0GHP2

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: V18901 SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-002

Sample wt/vol: 4.00 (g/mL) G Lab File ID: E5126

Level: (low/med) MED Date Received: 08/24/95

% Moisture: not dec. Date Analyzed: 09/01/95

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	620	U
67-64-1	Acetone	1700	J
75-15-0	Carbon Disulfide	620	U
75-35-4	1,1-Dichloroethene	620	U
75-34-3	1,1-Dichloroethane	620	U
540-59-0	1,2-Dichloroethene (total)	620	U
67-66-3	Chloroform	620	U
107-06-2	1,2-Dichloroethane	620	U
78-93-3	2-Butanone	860	J
71-55-6	1,1,1-Trichloroethane	620	U
56-23-5	Carbon Tetrachloride	1100	
75-27-4	Bromodichloromethane	620	U
78-87-5	1,2-Dichloropropane	620	U
10061-01-5	cis-1,3-Dichloropropene	620	U
79-01-6	Trichloroethene	620	U
124-48-1	Dibromochloromethane	620	U
79-00-5	1,1,2-Trichloroethane	620	U
71-43-2	Benzene	620	U
10061-02-6	trans-1,3-Dichloropropene	620	U
75-25-2	Bromoform	620	U
108-10-1	4-Methyl-2-Pentanone	6200	U
591-78-6	2-Hexanone	6200	U
127-18-4	Tetrachloroethene	620	U
79-34-5	1,1,2,2-Tetrachloroethane	620	U
108-88-3	Toluene	620	U
108-90-7	Chlorobenzene	620	U
100-41-4	Ethylbenzene	620	U
100-42-5	Styrene	620	U
1330-20-7	Xylene (total)	620	U

9613446.2832

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0GHP2

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: V18901 SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-002

Sample wt/vol: 4.00 (g/mL) G Lab File ID: E5126

Level: (low/med) MED Date Received: 08/24/95

% Moisture: not dec. Date Analyzed: 09/01/95

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613446.2833

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0GHP3

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: V18901 SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-001

Sample wt/vol: 1.00 (g/mL) G Lab File ID: E5144

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. Date Analyzed: 09/01/95

Column: (pack/cap) CAP Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	25	U
67-64-1	Acetone	120	BJ
75-15-0	Carbon Disulfide	25	U
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	25	U
67-66-3	Chloroform	35	
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	500	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	960	
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	27	
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	250	U
591-78-6	2-Hexanone	250	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
108-88-3	Toluene	25	U
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
1330-20-7	Xylene (total)	25	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0GHP3

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: V18901 SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-001

Sample wt/vol: 1.00 (g/mL) G Lab File ID: E5144

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. Date Analyzed: 09/01/95

Column (pack/cap) CAP Dilution Factor: 5.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	11.32	74	J

9613446.2835

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Semi-VOA-TCL
Method: EPA 8270
Matrix: SOLID

Client ID: BOGHP3

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Phenol	108-95-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Chloroethyl)Ether	111-44-4	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Chlorophenol	95-57-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,3-Dichlorobenzene	541-73-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,4-Dichlorobenzene	106-46-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,2-Dichlorobenzene	95-50-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Methylphenol	95-48-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Chloroisopropyl)Ether	108-60-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Methylphenol	106-44-5	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
N-nitroso-di-n-propylamine	621-64-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Hexachloroethane	67-72-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Nitrobenzene	98-95-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Isophorone	78-59-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Nitrophenol	88-75-5	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dimethylphenol	105-67-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Chloroethoxy)Methane	111-91-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dichlorophenol	120-83-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,2,4-Trichlorobenzene	120-82-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Naphthalene	91-20-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Chloroaniline	106-47-8	QCBLK76782-1	08/29/95	09/01/95	20000	UG/KG	U	20000	1
Hexachlorobutadiene	87-68-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Chloro-3-Methylphenol	59-50-7	QCBLK76782-1	08/29/95	09/01/95	20000	UG/KG	U	20000	1
2-Methylnaphthalene	91-57-6	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Hexachlorocyclopentadiene	77-47-4	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4,6-Trichlorophenol	88-06-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4,5-Trichlorophenol	95-95-4	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Chloronaphthalene	91-58-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Nitroaniline	88-74-4	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
DimethylPhthalate	131-11-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Acenaphthylene	208-96-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,6-Dinitrotoluene	606-20-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
3-Nitroaniline	99-09-2	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
Acenaphthene	83-32-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dinitrophenol	51-28-5	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
4-Nitrophenol	100-02-7	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
Dibenzofuran	132-64-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dinitrotoluene	121-14-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Diethylphthalate	84-66-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Chlorophenyl-PhenylEther	7005-72-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Fluorene	86-73-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Nitroaniline	100-01-6	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
4,6-Dinitro-2-Methylphenol	534-52-1	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
n-Nitrosodiphenylamine	86-30-6	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Bromophenyl-Phenyl Ether	101-55-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Hexachlorobenzene	118-74-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Pentachlorophenol	87-86-5	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
Phenanthrene	85-01-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Anthracene	120-12-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Carbazole	86-74-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Di-N-Butylphthalate	84-74-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Fluoranthene	206-44-0	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Pyrene	129-00-0	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
ButylBenzylPhthalate	85-68-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
3,3'-Dichlorobenzidine	91-94-1	QCBLK76782-1	08/29/95	09/01/95	20000	UG/KG	U	20000	1
Benzo(a)Anthracene	56-55-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Chrysene	218-01-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Ethylhexyl)Phthalate	117-81-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
di-N-OctylPhthalate	117-84-0	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(b)Fluoranthene	205-99-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(k)Fluoranthene	207-08-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(a)Pyrene	50-32-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1

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J.C.
10/13/95

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Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Semi-VOA-TCL
Method: EPA 8270
Matrix: SOLID

Client ID: BOGHP3

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Indeno(1,2,3-CD)Pyrene	193-39-5	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Dibenz(a,h)Anthracene	53-70-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(g,h,i)Perylene	191-24-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Aldol Condensation	TIC-4	QCBLK76782-1	08/29/95	09/01/95	240000	UG/KG	BJ		1
Nitrobenzene-d5	4165-60-0	QCBLK76782-1	08/29/95	09/01/95	19	%REC			1
2-Fluorobiphenyl	321-60-8	QCBLK76782-1	08/29/95	09/01/95	16	%REC			1
Terphenyl-d14	1718-51-0	QCBLK76782-1	08/29/95	09/01/95	70	%REC			1
Phenol-d5	13127-88-3	QCBLK76782-1	08/29/95	09/01/95	34	%REC			1
2-Fluorophenol	367-12-4	QCBLK76782-1	08/29/95	09/01/95	30	%REC			1
2,4,6-Tribromophenol	118-79-6	QCBLK76782-1	08/29/95	09/01/95	7	%REC			1

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J.C.
10/13/95

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Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Semi-VOA-TCL
Method: EPA 8270
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID: BOGHP3

Quanterra ID : 9189-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Phenol	108-95-2	QCBLK76782-1	08/29/95	09/01/95	43	%REC			1
2-Chlorophenol	95-57-8	QCBLK76782-1	08/29/95	09/01/95	34	%REC			1
1,4-Dichlorobenzene	106-46-7	QCBLK76782-1	08/29/95	09/01/95	17	%REC			1
N-nitroso-di-n-propylamine	621-64-7	QCBLK76782-1	08/29/95	09/01/95	41	%REC			1
1,2,4-Trichlorobenzene	120-82-1	QCBLK76782-1	08/29/95	09/01/95	21	%REC			1
4-Chloro-3-Methylphenol	59-50-7	QCBLK76782-1	08/29/95	09/01/95	36	%REC			1
Acenaphthene	83-32-9	QCBLK76782-1	08/29/95	09/01/95	28	%REC			1
4-Nitrophenol	100-02-7	QCBLK76782-1	08/29/95	09/01/95	9	%REC			1
2,4-Dinitrotoluene	121-14-2	QCBLK76782-1	08/29/95	09/01/95	37	%REC			1
Pentachlorophenol	87-86-5	QCBLK76782-1	08/29/95	09/01/95	7	%REC			1
Pyrene	129-00-0	QCBLK76782-1	08/29/95	09/01/95	29	%REC			1
Nitrobenzene-d5	4165-60-0	QCBLK76782-1	08/29/95	09/01/95	32	%REC			1
2-Fluorobiphenyl	321-60-8	QCBLK76782-1	08/29/95	09/01/95	27	%REC			1
Terphenyl-d14	1718-51-0	QCBLK76782-1	08/29/95	09/01/95	57	%REC			1
Phenol-d5	13127-88-3	QCBLK76782-1	08/29/95	09/01/95	42	%REC			1
2-Fluorophenol	367-12-4	QCBLK76782-1	08/29/95	09/01/95	36	%REC			1
2,4,6-Tribromophenol	118-79-6	QCBLK76782-1	08/29/95	09/01/95	3	%REC			1

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Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Semi-VOA-TCL
Method: EPA 8270
Matrix: SOLID

Client ID: BOGHP3

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Phenol	108-95-2	QCBLK76782-1	08/29/95	09/01/95	48	%REC			1
2-Chlorophenol	95-57-8	QCBLK76782-1	08/29/95	09/01/95	39	%REC			1
1,4-Dichlorobenzene	106-46-7	QCBLK76782-1	08/29/95	09/01/95	20	%REC			1
N-nitroso-di-n-propylamine	621-64-7	QCBLK76782-1	08/29/95	09/01/95	48	%REC			1
1,2,4-Trichlorobenzene	120-82-1	QCBLK76782-1	08/29/95	09/01/95	25	%REC			1
4-Chloro-3-Methylphenol	59-50-7	QCBLK76782-1	08/29/95	09/01/95	42	%REC			1
Acenaphthene	83-32-9	QCBLK76782-1	08/29/95	09/01/95	32	%REC			1
4-Nitrophenol	100-02-7	QCBLK76782-1	08/29/95	09/01/95	12	%REC			1
2,4-Dinitrotoluene	121-14-2	QCBLK76782-1	08/29/95	09/01/95	44	%REC			1
Pentachlorophenol	87-86-5	QCBLK76782-1	08/29/95	09/01/95	9	%REC			1
Pyrene	129-00-0	QCBLK76782-1	08/29/95	09/01/95	36	%REC			1
Nitrobenzene-d5	4165-60-0	QCBLK76782-1	08/29/95	09/01/95	31	%REC			1
2-Fluorobiphenyl	321-60-8	QCBLK76782-1	08/29/95	09/01/95	27	%REC			1
Terphenyl-d14	1718-51-0	QCBLK76782-1	08/29/95	09/01/95	61	%REC			1
Phenol-d5	13127-88-3	QCBLK76782-1	08/29/95	09/01/95	46	%REC			1
2-Fluorophenol	367-12-4	QCBLK76782-1	08/29/95	09/01/95	39	%REC			1
2,4,6-Tribromophenol	118-79-6	QCBLK76782-1	08/29/95	09/01/95	5	%REC			1

9613446.2839

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Semi-VOA-TCL
Method: EPA 8270
Matrix: SOLID

Client ID: BOGHP2

Sample Date : 08/21/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Phenol	108-95-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Chloroethyl)Ether	111-44-4	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Chlorophenol	95-57-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,3-Dichlorobenzene	541-73-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,4-Dichlorobenzene	106-46-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,2-Dichlorobenzene	95-50-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Methylphenol	95-48-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Chloroisopropyl)Ether	108-60-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Methylphenol	106-44-5	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
N-nitroso-di-n-propylamine	621-64-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Hexachloroethane	67-72-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Nitrobenzene	98-95-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Isophorone	78-59-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Nitrophenol	88-75-5	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dimethylphenol	105-67-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Chloroethoxy)Methane	111-91-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dichlorophenol	120-83-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
1,2,4-Trichlorobenzene	120-82-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Naphthalene	91-20-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Chloroaniline	106-47-8	QCBLK76782-1	08/29/95	09/01/95	20000	UG/KG	U	20000	1
Hexachlorobutadiene	87-68-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Chloro-3-Methylphenol	59-50-7	QCBLK76782-1	08/29/95	09/01/95	20000	UG/KG	U	20000	1
2-Methylnaphthalene	91-57-6	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Hexachlorocyclopentadiene	77-47-4	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4,6-Trichlorophenol	88-06-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4,5-Trichlorophenol	95-95-4	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Chloronaphthalene	91-58-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2-Nitroaniline	88-74-4	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
DimethylPhthalate	131-11-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Acenaphthylene	208-96-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,6-Dinitrotoluene	606-20-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
3-Nitroaniline	99-09-2	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
Acenaphthene	83-32-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dinitrophenol	51-28-5	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
4-Nitrophenol	100-02-7	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
Dibenzofuran	132-64-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
2,4-Dinitrotoluene	121-14-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Diethylphthalate	84-66-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Chlorophenyl-PhenylEther	7005-72-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Fluorene	86-73-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Nitroaniline	100-01-6	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
4,6-Dinitro-2-Methylphenol	534-52-1	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
n-Nitrosodiphenylamine	86-30-6	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
4-Bromophenyl-Phenyl Ether	101-55-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Hexachlorobenzene	118-74-1	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Pentachlorophenol	87-86-5	QCBLK76782-1	08/29/95	09/01/95	50000	UG/KG	U	50000	1
Phenanthrene	85-01-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Anthracene	120-12-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Carbazole	86-74-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Di-N-Butylphthalate	84-74-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Fluoranthene	206-44-0	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Pyrene	129-00-0	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
ButylBenzylPhthalate	85-68-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
3,3'-Dichlorobenzidine	91-94-1	QCBLK76782-1	08/29/95	09/01/95	20000	UG/KG	U	20000	1
Benzo(a)Anthracene	56-55-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Chrysene	218-01-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
bis(2-Ethylhexyl)Phthalate	117-81-7	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
di-N-OctylPhthalate	117-84-0	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(b)Fluoranthene	205-99-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(k)Fluoranthene	207-08-9	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(a)Pyrene	50-32-8	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1

9613446.2840

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Semi-VOA-TCL
Method: EPA 8270
Matrix: SOLID

Client ID: BOGHP2

Sample Date : 08/21/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Indeno(1,2,3-CD)Pyrene	193-39-5	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Dibenz(a,h)Anthracene	53-70-3	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Benzo(g,h,i)Perylene	191-24-2	QCBLK76782-1	08/29/95	09/01/95	9900	UG/KG	U	9900	1
Aldol Condensation	TIC-4	QCBLK76782-1	08/29/95	09/01/95	220000	UG/KG	BJ		1
Nitrobenzene-d5	4165-60-0	QCBLK76782-1	08/29/95	09/01/95	33	%REC			1
2-Fluorobiphenyl	321-60-8	QCBLK76782-1	08/29/95	09/01/95	25	%REC			1
Terphenyl-d14	1718-51-0	QCBLK76782-1	08/29/95	09/01/95	68	%REC			1
Phenol-d5	13127-88-3	QCBLK76782-1	08/29/95	09/01/95	46	%REC			1
2-Fluorophenol	367-12-4	QCBLK76782-1	08/29/95	09/01/95	43	%REC			1
2,4,6-Tribromophenol	118-79-6	QCBLK76782-1	08/29/95	09/01/95	4	%REC			1

9613446.2841

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0GHP2

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: S18901 SAS No.: SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-002

Sample wt/vol: 2.00 (g/mL) G Lab File ID: A0390

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. dec. Date Extracted: 08/29/95

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/01/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	9900	U
111-44-4	bis(2-Chloroethyl)Ether	9900	U
95-57-8	2-Chlorophenol	9900	U
541-73-1	1,3-Dichlorobenzene	9900	U
106-46-7	1,4-Dichlorobenzene	9900	U
95-50-1	1,2-Dichlorobenzene	9900	U
95-48-7	2-Methylphenol	9900	U
108-60-1	2,2'-oxybis(1-Chloropropane)	9900	U
106-44-5	4-Methylphenol	9900	U
621-64-7	N-Nitroso-Di-n-Propylamine	9900	U
67-72-1	Hexachloroethane	9900	U
98-95-3	Nitrobenzene	9900	U
78-59-1	Isophorone	9900	U
88-75-5	2-Nitrophenol	9900	U
105-67-9	2,4-Dimethylphenol	9900	U
111-91-1	bis(2-Chloroethoxy)Methane	9900	U
120-83-2	2,4-Dichlorophenol	9900	U
120-82-1	1,2,4-Trichlorobenzene	9900	U
91-20-3	Naphthalene	9900	U
106-47-8	4-Chloroaniline	20000	U
87-68-3	Hexachlorobutadiene	9900	U
59-50-7	4-Chloro-3-Methylphenol	20000	U
91-57-6	2-Methylnaphthalene	9900	U
77-47-4	Hexachlorocyclopentadiene	9900	U
88-06-2	2,4,6-Trichlorophenol	9900	U
95-95-4	2,4,5-Trichlorophenol	9900	U
91-58-7	2-Chloronaphthalene	9900	U
88-74-4	2-Nitroaniline	50000	U
131-11-3	Dimethyl Phthalate	9900	U
208-96-8	Acenaphthylene	9900	U
606-20-2	2,6-Dinitrotoluene	9900	U

9613446.2842

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0GHP2

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: S18901 SAS No.: SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-002

Sample wt/vol: 2.00 (g/mL) G Lab File ID: A0390

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. dec. Date Extracted: 08/29/95

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/01/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	50000	U
83-32-9	Acenaphthene	9900	U
51-28-5	2,4-Dinitrophenol	50000	U
100-02-7	4-Nitrophenol	50000	U
132-64-9	Dibenzofuran	9900	U
121-14-2	2,4-Dinitrotoluene	9900	U
84-66-2	Diethylphthalate	9900	U
7005-72-3	4-Chlorophenyl-phenylether	9900	U
86-73-7	Fluorene	9900	U
100-01-6	4-Nitroaniline	50000	U
534-52-1	4,6-Dinitro-2-Methylphenol	50000	U
86-30-6	N-Nitrosodiphenylamine (1)	9900	U
101-55-3	4-Bromophenyl-phenylether	9900	U
118-74-1	Hexachlorobenzene	9900	U
87-86-5	Pentachlorophenol	50000	U
85-01-8	Phenanthrene	9900	U
120-12-7	Anthracene	9900	U
86-74-8	Carbazole	9900	U
84-74-2	Di-n-Butylphthalate	9900	U
206-44-0	Fluoranthene	9900	U
129-00-0	Pyrene	9900	U
85-68-7	Butylbenzylphthalate	9900	U
91-94-1	3,3'-Dichlorobenzidine	20000	U
56-55-3	Benzo(a)Anthracene	9900	U
218-01-9	Chrysene	9900	U
117-81-7	bis(2-Ethylhexyl)Phthalate	9900	U
117-84-0	Di-n-Octyl Phthalate	9900	U
205-99-2	Benzo(b)Fluoranthene	9900	U
207-08-9	Benzo(k)Fluoranthene	9900	U
50-32-8	Benzo(a)Pyrene	9900	U
193-39-5	Indeno(1,2,3-cd)Pyrene	9900	U
53-70-3	Dibenz(a,h)Anthracene	9900	U
191-24-2	Benzo(g,h,i)Perylene	9900	U

(1) - Cannot be separated from Diphenylamine

0060055

9613446.2843

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0GHP2

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: S18901 SAS No.: SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-002

Sample wt/vol: 2.00 (g/mL) G Lab File ID: A0390

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. dec. Date Extracted: 08/29/95

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/01/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	Aldol Condensation	4.61	220000	ABJ

FORM I SV-TIC 1/87 Rev.

0000056

9613446.2844

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0GHP3

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: S18901 SAS No.: SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-001

Sample wt/vol: 2.00 (g/mL) G Lab File ID: A0387

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. dec. Date Extracted: 08/29/95

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/01/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	9900	U
111-44-4	bis(2-Chloroethyl)Ether	9900	U
95-57-8	2-Chlorophenol	9900	U
541-73-1	1,3-Dichlorobenzene	9900	U
106-46-7	1,4-Dichlorobenzene	9900	U
95-50-1	1,2-Dichlorobenzene	9900	U
95-48-7	2-Methylphenol	9900	U
108-60-1	2,2'-oxybis(1-Chloropropane)	9900	U
106-44-5	4-Methylphenol	9900	U
621-64-7	N-Nitroso-Di-n-Propylamine	9900	U
67-72-1	Hexachloroethane	9900	U
98-95-3	Nitrobenzene	9900	U
78-59-1	Isophorone	9900	U
88-75-5	2-Nitrophenol	9900	U
105-67-9	2,4-Dimethylphenol	9900	U
111-91-1	bis(2-Chloroethoxy)Methane	9900	U
120-83-2	2,4-Dichlorophenol	9900	U
120-82-1	1,2,4-Trichlorobenzene	9900	U
91-20-3	Naphthalene	9900	U
106-47-8	4-Chloroaniline	20000	U
87-68-3	Hexachlorobutadiene	9900	U
59-50-7	4-Chloro-3-Methylphenol	20000	U
91-57-6	2-Methylnaphthalene	9900	U
77-47-4	Hexachlorocyclopentadiene	9900	U
88-06-2	2,4,6-Trichlorophenol	9900	U
95-95-4	2,4,5-Trichlorophenol	9900	U
91-58-7	2-Chloronaphthalene	9900	U
88-74-4	2-Nitroaniline	50000	U
131-11-3	Dimethyl Phthalate	9900	U
208-96-8	Acenaphthylene	9900	U
606-20-2	2,6-Dinitrotoluene	9900	U

9613446.2845

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0GHP3

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: S18901 SAS No.: SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-001

Sample wt/vol: 2.00 (g/mL) G Lab File ID: A0387

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. dec. Date Extracted: 08/29/95

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/01/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	50000	U
83-32-9	Acenaphthene	9900	U
51-28-5	2,4-Dinitrophenol	50000	U
100-02-7	4-Nitrophenol	50000	U
132-64-9	Dibenzofuran	9900	U
121-14-2	2,4-Dinitrotoluene	9900	U
84-66-2	Diethylphthalate	9900	U
7005-72-3	4-Chlorophenyl-phenylether	9900	U
86-73-7	Fluorene	9900	U
100-01-6	4-Nitroaniline	50000	U
534-52-1	4,6-Dinitro-2-Methylphenol	50000	U
86-30-6	N-Nitrosodiphenylamine (1)	9900	U
101-55-3	4-Bromophenyl-phenylether	9900	U
118-74-1	Hexachlorobenzene	9900	U
87-86-5	Pentachlorophenol	50000	U
85-01-8	Phenanthrene	9900	U
120-12-7	Anthracene	9900	U
86-74-8	Carbazole	9900	U
84-74-2	Di-n-Butylphthalate	9900	U
206-44-0	Fluoranthene	9900	U
129-00-0	Pyrene	9900	U
85-68-7	Butylbenzylphthalate	9900	U
91-94-1	3,3'-Dichlorobenzidine	20000	U
56-55-3	Benzo(a)Anthracene	9900	U
218-01-9	Chrysene	9900	U
117-81-7	bis(2-Ethylhexyl)Phthalate	9900	U
117-84-0	Di-n-Octyl Phthalate	9900	U
205-99-2	Benzo(b)Fluoranthene	9900	U
207-08-9	Benzo(k)Fluoranthene	9900	U
50-32-8	Benzo(a)Pyrene	9900	U
193-39-5	Indeno(1,2,3-cd)Pyrene	9900	U
53-70-3	Dibenz(a,h)Anthracene	9900	U
191-24-2	Benzo(g,h,i)Perylene	9900	U

(1) - Cannot be separated from Diphenylamine

9613446.2846

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0GHP3

Lab Name: QUANTERRA MO Contract: 550-65

Lab Code: ITMO Case No.: S18901 SAS No.: SDG No.: W0686

Matrix: (soil/water) SOIL Lab Sample ID: 9189-001

Sample wt/vol: 2.00 (g/mL) G Lab File ID: A0387

Level: (low/med) LOW Date Received: 08/24/95

% Moisture: not dec. dec. Date Extracted: 08/29/95

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/01/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	Aldol Condensation	4.63	240000	ABJ

FORM I SV-TIC 1/87 Rev.

0000062

9613446.2847

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: ICAP Metals-TAL
Method: EPA 6010
Matrix: SOLID

Client ID: BOGHP3

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK77606-1	09/11/95	09/11/95	2.8	MG/KG	B	20.0	1
Antimony	7440-36-0	QCBLK77606-1	09/11/95	09/11/95	4.6	MG/KG	U	10.0	1
Barium	7440-39-3	QCBLK77606-1	09/11/95	09/11/95	0.49	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK77606-1	09/11/95	09/11/95	0.070	MG/KG	B	0.70	1
Cadmium	7440-43-9	QCBLK77606-1	09/11/95	09/11/95	0.36	MG/KG	B	2.0	1
Calcium	7440-70-2	QCBLK77606-1	09/11/95	09/11/95	212	MG/KG	B	500	1
Chromium	7440-47-3	QCBLK77606-1	09/11/95	09/11/95	14.3	MG/KG		2.0	1
Cobalt	7440-48-4	QCBLK77606-1	09/11/95	09/11/95	0.43	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK77606-1	09/11/95	09/11/95	0.47	MG/KG	U	2.5	1
Iron	7439-89-6	QCBLK77606-1	09/11/95	09/11/95	36.3	MG/KG		10.0	1
Magnesium	7439-95-4	QCBLK77606-1	09/11/95	09/11/95	33.7	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK77606-1	09/11/95	09/11/95	0.33	MG/KG	B	1.5	1
Nickel	7440-02-0	QCBLK77606-1	09/11/95	09/11/95	1.4	MG/KG	U	4.0	1
Potassium	7440-09-7	QCBLK77606-1	09/11/95	09/11/95	106	MG/KG	U	500	1
Silver	7440-22-4	QCBLK77606-1	09/11/95	09/11/95	0.22	MG/KG	U	20.0	1
Sodium	7440-23-5	QCBLK77606-1	09/11/95	09/11/95	28.3	MG/KG	B	100	1
Vanadium	7440-62-2	QCBLK77606-1	09/11/95	09/11/95	4.6	MG/KG	B	5.0	1
Zinc	7440-66-6	QCBLK77606-1	09/11/95	09/11/95	2.6	MG/KG		2.0	1

9613446.2848

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: ICAP Metals-TAL
Method: EPA 6010
Matrix: SOLID

Client ID: BOGHP3

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Quanterra ID : 9189-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Antimony	7440-36-0	QCBLK77606-1	09/11/95	09/11/95	30	%REC			1
Barium	7440-39-3	QCBLK77606-1	09/11/95	09/11/95	98	%REC			1
Beryllium	7440-41-7	QCBLK77606-1	09/11/95	09/11/95	100	%REC			1
Cadmium	7440-43-9	QCBLK77606-1	09/11/95	09/11/95	72	%REC			1
Chromium	7440-47-3	QCBLK77606-1	09/11/95	09/11/95	105	%REC			1
Cobalt	7440-48-4	QCBLK77606-1	09/11/95	09/11/95	100	%REC			1
Copper	7440-50-8	QCBLK77606-1	09/11/95	09/11/95	102	%REC			1
Manganese	7439-96-5	QCBLK77606-1	09/11/95	09/11/95	100	%REC			1
Nickel	7440-02-0	QCBLK77606-1	09/11/95	09/11/95	102	%REC			1
Silver	7440-22-4	QCBLK77606-1	09/11/95	09/11/95	95	%REC			1
Vanadium	7440-62-2	QCBLK77606-1	09/11/95	09/11/95	100	%REC			1
Zinc	7440-66-6	QCBLK77606-1	09/11/95	09/11/95	82	%REC			1

9613446.2849

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: ICAP Metals-TAL
Method: EPA 6010
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID: BOGHP3

Quanterra ID : 9189-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Antimony	7440-36-0	QCBLK77606-1	09/11/95	09/11/95	26	%REC			1
Barium	7440-39-3	QCBLK77606-1	09/11/95	09/11/95	96	%REC			1
Beryllium	7440-41-7	QCBLK77606-1	09/11/95	09/11/95	97	%REC			1
Cadmium	7440-43-9	QCBLK77606-1	09/11/95	09/11/95	71	%REC			1
Chromium	7440-47-3	QCBLK77606-1	09/11/95	09/11/95	97	%REC			1
Cobalt	7440-48-4	QCBLK77606-1	09/11/95	09/11/95	97	%REC			1
Copper	7440-50-8	QCBLK77606-1	09/11/95	09/11/95	97	%REC			1
Manganese	7439-96-5	QCBLK77606-1	09/11/95	09/11/95	95	%REC			1
Nickel	7440-02-0	QCBLK77606-1	09/11/95	09/11/95	99	%REC			1
Silver	7440-22-4	QCBLK77606-1	09/11/95	09/11/95	95	%REC			1
Vanadium	7440-62-2	QCBLK77606-1	09/11/95	09/11/95	96	%REC			1
Zinc	7440-66-6	QCBLK77606-1	09/11/95	09/11/95	80	%REC			1

9613446.2850

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: ICAP Metals-TAL
Method: EPA 6010
Matrix: SOLID

Sample Date : 08/21/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID: BOGHP2

Quanterra ID : 9189-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK77606-1	09/11/95	09/11/95	4.8	MG/KG	B	20.0	1
Antimony	7440-36-0	QCBLK77606-1	09/11/95	09/11/95	4.6	MG/KG	U	10.0	1
Barium	7440-39-3	QCBLK77606-1	09/11/95	09/11/95	0.93	MG/KG	B	20.0	1
Beryllium	7440-41-7	QCBLK77606-1	09/11/95	09/11/95	0.050	MG/KG	U	0.70	1
Cadmium	7440-43-9	QCBLK77606-1	09/11/95	09/11/95	0.31	MG/KG	U	2.0	1
Calcium	7440-70-2	QCBLK77606-1	09/11/95	09/11/95	292	MG/KG	B	500	1
Chromium	7440-47-3	QCBLK77606-1	09/11/95	09/11/95	22.8	MG/KG		2.0	1
Cobalt	7440-48-4	QCBLK77606-1	09/11/95	09/11/95	0.43	MG/KG	U	5.0	1
Copper	7440-50-8	QCBLK77606-1	09/11/95	09/11/95	1.7	MG/KG	B	2.5	1
Iron	7439-89-6	QCBLK77606-1	09/11/95	09/11/95	275	MG/KG		10.0	1
Magnesium	7439-95-4	QCBLK77606-1	09/11/95	09/11/95	32.7	MG/KG	B	500	1
Manganese	7439-96-5	QCBLK77606-1	09/11/95	09/11/95	0.35	MG/KG	B	1.5	1
Nickel	7440-02-0	QCBLK77606-1	09/11/95	09/11/95	1.4	MG/KG	U	4.0	1
Potassium	7440-09-7	QCBLK77606-1	09/11/95	09/11/95	106	MG/KG	U	500	1
Silver	7440-22-4	QCBLK77606-1	09/11/95	09/11/95	0.22	MG/KG	U	20.0	1
Sodium	7440-23-5	QCBLK77606-1	09/11/95	09/11/95	28.7	MG/KG	B	100	1
Vanadium	7440-62-2	QCBLK77606-1	09/11/95	09/11/95	5.9	MG/KG		5.0	1
Zinc	7440-66-6	QCBLK77606-1	09/11/95	09/11/95	20.6	MG/KG		2.0	1

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0GHP2

Lab Name: QUANTERRA_MO Contract: 550.65

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0686

Matrix (soil/water): SOIL Lab Sample ID: 9189-002

Level (low/med): LOW Date Received: 08/24/95

% 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	4.8	B		P
7440-36-0	Antimony	4.6	U	N	P
7440-38-2	Arsenic	0.37	B		F
7440-39-3	Barium	0.93	B		P
7440-41-7	Beryllium	0.05	U		P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	292	B	E	P
7440-47-3	Chromium	22.8			P
7440-48-4	Cobalt	0.43	U		P
7440-50-8	Copper	1.7	B		P
7439-89-6	Iron	275			P
7439-92-1	Lead	1.0			F
7439-95-4	Magnesium	32.7	B		P
7439-96-5	Manganese	0.35	B		P
7439-97-6	Mercury	0.05	U	N	CV
7440-02-0	Nickel	1.4	U		P
7440-09-7	Potassium	106	U		P
7782-49-2	Selenium	2.2			F
7440-22-4	Silver	0.22	U		P
7440-23-5	Sodium	28.7	B		P
7440-28-0	Thallium	0.09	U		F
7440-62-2	Vanadium	5.9			P
7440-66-6	Zinc	20.6			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

0000091

9613446.2852

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0GHP3

Lab Name: QUANTERRA MO Contract: 550.65

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0686

Matrix (soil/water): SOIL Lab Sample ID: 9189-001

Level (low/med): LOW Date Received: 08/24/95

% 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	2.8	B		P
7440-36-0	Antimony	4.6	U	N	P
7440-38-2	Arsenic	0.24	B		F
7440-39-3	Barium	0.49	B		P
7440-41-7	Beryllium	0.07	B		P
7440-43-9	Cadmium	0.36	B	N	P
7440-70-2	Calcium	212	B	E	P
7440-47-3	Chromium	14.3			P
7440-48-4	Cobalt	0.43	U		P
7440-50-8	Copper	0.47	U		P
7439-89-6	Iron	36.3			P
7439-92-1	Lead	0.11	U		F
7439-95-4	Magnesium	33.7	B		P
7439-96-5	Manganese	0.33	B		P
7439-97-6	Mercury	0.05	U	N	CV
7440-02-0	Nickel	1.4	U		P
7440-09-7	Potassium	106	U		P
7782-49-2	Selenium	2.8			F
7440-22-4	Silver	0.22	U		P
7440-23-5	Sodium	28.3	B		P
7440-28-0	Thallium	0.09	U		F
7440-62-2	Vanadium	4.6	B		P
7440-66-6	Zinc	2.6			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

0000092

9613446.2853

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Chloride
Method: EPA 300.0
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOGHP3	9189-001	Chloride	16887-00-6	QCBLK76752-1	08/28/95	08/28/95	1.98	UG/G	U	1.98	1
BOGHP3	9189-001DUP	Chloride	16887-00-6	QCBLK76752-1	08/28/95	08/28/95	1.98	UG/G	U	1.98	1
BOGHP3	9189-001MS	Chloride	16887-00-6	QCBLK76752-1	08/28/95	08/28/95	101	%REC			5
BOGHP2	9189-002	Chloride	16887-00-6	QCBLK76752-1	08/28/95	08/28/95	4.59	UG/G		2.00	1
NA	QCBLK76752-1	Chloride	16887-00-6	QCBLK76752-1	08/28/95	08/28/95	2.00	UG/G	U	2.00	1
NA	QCLCS76752-1	Chloride	16887-00-6	QCBLK76752-1	08/28/95	08/28/95	98	%REC			1

9613446.2854

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Fluoride
Method: EPA 300.0
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOGHP3	9189-001	Fluoride	16984-48-8	QCBLK76752-1	08/28/95	08/28/95	0.99	UG/G	U	0.99	1
BOGHP3	9189-001DUP	Fluoride	16984-48-8	QCBLK76752-1	08/28/95	08/28/95	0.99	UG/G	U	0.99	1
BOGHP3	9189-001MS	Fluoride	16984-48-8	QCBLK76752-1	08/28/95	08/28/95	101	%REC			1
BOGHP2	9189-002	Fluoride	16984-48-8	QCBLK76752-1	08/28/95	08/28/95	1.00	UG/G	U	1.00	1
NA	QCBLK76752-1	Fluoride	16984-48-8	QCBLK76752-1	08/28/95	08/28/95	1.00	UG/G	U	1.00	1
NA	QCLCS76752-1	Fluoride	16984-48-8	QCBLK76752-1	08/28/95	08/28/95	99	%REC			1

9613446.2855

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Nitrite-N
Method: EPA 300.0
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOGHP3	9189-001	Nitrite-N	14797-65-0	QCBLK76752-1	08/28/95	08/28/95	0.20	UG/G	U	0.20	1
BOGHP3	9189-001DUP	Nitrite-N	14797-65-0	QCBLK76752-1	08/28/95	08/28/95	0.20	UG/G	U	0.20	1
BOGHP3	9189-001MS	Nitrite-N	14797-65-0	QCBLK76752-1	08/28/95	08/28/95	94	%REC			5
BOGHP2	9189-002	Nitrite-N	14797-65-0	QCBLK76752-1	08/28/95	08/28/95	0.20	UG/G	U	0.20	1
NA	QCBLK76752-1	Nitrite-N	14797-65-0	QCBLK76752-1	08/28/95	08/28/95	0.20	UG/G	U	0.20	1
NA	QCLCS76752-1	Nitrite-N	14797-65-0	QCBLK76752-1	08/28/95	08/28/95	110	%REC			1

9613446.2856

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Nitrate
Method: EPA 300.0
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0GHP3	9189-001	Nitrate-N	14797-55-8	QCBLK77598-1	09/07/95	09/07/95	10.9	UG/G		0.39	2
B0GHP3	9189-001DUP	Nitrate-N	14797-55-8	QCBLK77598-1	09/07/95	09/07/95	11.1	UG/G		0.40	2
B0GHP3	9189-001MS	Nitrate-N	14797-55-8	QCBLK77598-1	09/07/95	09/07/95	103	%REC			5
B0GHP2	9189-002	Nitrate-N	14797-55-8	QCBLK77598-1	09/07/95	09/07/95	39.8	UG/G		0.94	5
NA	QCBLK77598-2	Nitrate-N	14797-55-8	QCBLK77598-1	09/07/95	09/07/95	0.20	UG/G	U	0.20	1
NA	QCLCS77598-3	Nitrate-N	14797-55-8	QCBLK77598-1	09/07/95	09/07/95	98	%REC			1

9613446.2857

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: Orthophosphate
Method: EPA 300.0
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOGHP3	9189-001	Ortho-Phosphate	14265-44-2	QCBLK76752-1	08/28/95	08/28/95	4.95	UG/G	U	4.95	1
BOGHP3	9189-001DUP	Ortho-Phosphate	14265-44-2	QCBLK76752-1	08/28/95	08/28/95	4.96	UG/G	U	4.96	1
BOGHP3	9189-001MS	Ortho-Phosphate	14265-44-2	QCBLK76752-1	08/28/95	08/28/95	107	%REC			1
BOGHP2	9189-002	Ortho-Phosphate	14265-44-2	QCBLK76752-1	08/28/95	08/28/95	4.98	UG/G	U	4.98	1
NA	QCBLK76752-1	Ortho-Phosphate	14265-44-2	QCBLK76752-1	08/28/95	08/28/95	5.00	UG/G	U	5.00	1
NA	QCLCS76752-1	Ortho-Phosphate	14265-44-2	QCBLK76752-1	08/28/95	08/28/95	96	%REC			1

9613446.2858

Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.65

Category: NO2-NO3
Method: EPA 353.1
Matrix: SOLID

Sample Date : 08/22/95
Receipt Date : 08/24/95
Report Date : 10/09/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOGHP3	9189-001	Nitrate/Nitrite	C-005	QCBLK79416-1	09/30/95	09/30/95	3020	UG/G		246	500
BOGHP3	9189-001DUP	Nitrate/Nitrite	C-005	QCBLK79416-1	09/30/95	09/30/95	3040	UG/G		250	500
BOGHP3	9189-001MS	Nitrate/Nitrite	C-005	QCBLK79416-1	09/30/95	09/30/95	0	%REC			500
BOGHP2	9189-002	Nitrate/Nitrite	C-005	QCBLK79416-1	09/30/95	09/30/95	2120	UG/G		249	500
NA	QCBLK79416-1	Nitrate/Nitrite	C-005	QCBLK79416-1	09/30/95	09/30/95	0.50	UG/G	U	0.50	1
NA	QCLCS79416-1	Nitrate/Nitrite	C-005	QCBLK79416-1	09/30/95	09/30/95	100	%REC			1

9613446.2859

Quanterra
Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

OCT 1995
RECEIVED
Data
Log In

Bechtel Hanford, Inc.
345 Hills
Richland, WA 99352

October 23, 1995

Attention: Joan Kessner

SAF Number	:	B95-014
Date SDG Closed	:	September 7, 1995
Number of Samples	:	Two (2)
Sample Type	:	Other
SDG Number	:	W0686
Data Deliverable	:	Summary

I. Introduction

On August 24, 1995, two "other" matrix samples were received by the Quanterra Environmental Services Richland Laboratory (QTESRL) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

QTESRL ID	BHI ID	Matrix	Date of Receipt
50841501	B0GHP2	Other	8/24/95
50841502	B0GHP3	Other	8/24/95

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

Quanterra
Environmental Services

The requested analyses were:

Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Liquid Scintillation Counting
Technetium-99 by method ITAS-IT-RS-0001
Total Uranium
Total Uranium by method ITAS-RD-4200

III. Quality Control

The analytical results for each analysis performed under SDG W0686 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results with the exception of Gross Alpha and Gross Beta QC sample results which are reported in pCi/sample.

IV. Comments

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
The sample sizes were reduced to 25 grams for this SDG due to the high activity of the samples. As a result, the calculated MDA exceeds the RDL for all undetected isotopes in the samples. The sample size adjusted RDL is met for the blank and the data are accepted. The Ra-226 recovery for the LCS is just outside of acceptable limits. The isotope was not considered detected by the ND system due to the increased MDA levels that resulted from the reduced sample mass analyzed. Since Ra-226 was not detected, it was not background corrected. The LCS is accepted based on the acceptable recovery for Cs-137. The LCS, batch blank, sample and sample duplicate (B0GHP3) results are within contractual requirements, except as noted.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The batch was reanalyzed because the LCS recovery was outside of acceptable limits. The reanalysis of the samples is acceptable, but the analyst requested a recount of sample B0GHP3 and its duplicate to improve the achieved MDA. The sample sizes analyzed were reduced due to high screening activities, which increased the MDA. The sample results exceed the achieved MDAs. The LCS, batch blank, sample and sample duplicate (B0GHP3) results are within contractual requirements.

Gross Beta by method ITAS-RD-3222
The sample sizes analyzed were reduced due to high screening activities. The samples meet the RDL requirements using the smaller sample sizes. The LCS, batch blank, sample and sample duplicate (B0GHP3) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The batch required a reanalysis due to sample labeling error by the technician. On the reanalysis, the matrix spike is considered lost in analysis due to an unacceptable recovery. The sample activity is more than 59 times the activity of the spike used, therefore, the poor matrix spike recovery is attributed to a matrix effect (high sample activity). Sample B0GHP2 and its duplicate are not within the three sigma control limit. The duplicate disagreement is attributed to a non-homogeneous sample. The matrix spike, LCS, batch blank, sample and sample duplicate (B0GHP2) results are within contractual requirements, except as noted.

Total Uranium

Total Uranium by method ITAS-RD-4200
The batch was analyzed without a matrix spike because the initial screening of the samples indicated the activity levels were very high. The laboratory does not have a spike with an activity high enough to be measured in samples containing the levels of uranium observed in these samples. The aliquot sizes were reduced from 2 grams to 0.1 grams for analysis of the samples due to high screening activity. The samples meet the RDL requirement using the reduced sample sizes. The LCS, batch blank, sample and sample duplicate (B0GHP2) results are within contractual requirements.

Quanterra
Environmental Services

I certify that this Certificate of Analysis 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:

Suzanne Gaines

Suzanne Gaines
Project Manager

9613446.2863

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0686
LAB SAMPLE ID:	50841501	MATRIX:	OTHER
CLIENT ID:	B0GHP2	DATE RECEIVED:	8/24/95 1:45:00 PM

ISOTOPE	RESULT	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
CO-58	4.37E-01	3.3E-01	3.3E-01	5.14E-01	pCi/g	N/A	RD3219
CO-60	2.50E+00	3.4E-01	4.3E-01	N/A	pCi/g	N/A	RD3219
CS-137DA	1.39E-01	2.5E-01	2.5E-01	4.07E-01	pCi/g	N/A	RD3219
EU-152	7.60E-02	5.9E-01	5.9E-01	9.40E-01	pCi/g	N/A	RD3219
EU-154	4.86E-01	3.9E-01	4.0E-01	6.14E-01	pCi/g	N/A	RD3219
EU-155	1.68E+01	1.5E+00	2.3E+00	2.66E+00	pCi/g	N/A	RD3219
FE-59	1.56E-01	4.1E-01	4.1E-01	6.84E-01	pCi/g	N/A	RD3219
U-235	2.98E+02	4.3E+00	3.0E+01	N/A	pCi/g	N/A	RD3219
U-238DLP	5.86E+03	7.1E+01	5.9E+02	N/A	pCi/g	N/A	RD3219
ALPHA	1.77E+03	1.4E+02	3.2E+02	2.63E+01	pCi/g	100.00%	RD3222
BETA	2.44E+04	7.4E+02	1.8E+03	1.99E+02	pCi/g	100.00%	RD3222
TC-99	1.08E+05	2.7E+02	1.2E+04	2.04E+01	pCi/g	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.69E+04	N/A	2.3E+03	2.33E-02	ug/g	103.60%	RD4200

Number of Results: 13

9613446.2864

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0686
LAB SAMPLE ID:	50841502	MATRIX:	OTHER
CLIENT ID:	B0GHP3	DATE RECEIVED:	8/24/95 1:45:00 PM

ISOTOPE	RESULT	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
CO-58	5.62E-02	8.0E-02	8.0E-02	1.30E-01	pCi/g	N/A	RD3219
CO-60	3.88E-02	6.9E-02	6.9E-02	1.08E-01	pCi/g	N/A	RD3219
CS-137DA	1.95E-02	5.5E-02	5.5E-02	9.79E-02	pCi/g	N/A	RD3219
EU-152	5.64E-03	1.3E-01	1.3E-01	2.29E-01	pCi/g	N/A	RD3219
EU-154	1.35E-01	1.4E-01	1.4E-01	3.16E-01	pCi/g	N/A	RD3219
EU-155	2.32E-01	4.4E-01	4.4E-01	6.97E-01	pCi/g	N/A	RD3219
FE-59	1.54E-01	1.6E-01	1.6E-01	3.33E-01	pCi/g	N/A	RD3219
U-235	3.50E+00	8.5E-01	9.2E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	7.20E+01	9.0E+00	1.2E+01	N/A	pCi/g	N/A	RD3219
ALPHA	3.65E+01	1.1E+01	1.3E+01	1.02E+01	pCi/g	100.00%	RD3222
BETA	1.78E+04	5.3E+02	1.3E+03	1.35E+02	pCi/g	100.00%	RD3222
TC-99	8.11E+04	2.0E+02	8.7E+03	2.04E+01	pCi/g	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	2.38E+02	N/A	5.3E+01	2.33E-02	ug/g	103.60%	RD4200

Number of Results: 13

9613446.2865

10-12

Quanterra

Environmental Services

Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 508415 BHI

Other

Lab Sample Numbers or SDG: W0686

Method/Test/Parameter: GAMMA

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?	✓			✓
B. 1.	**Sample Analysis** Are the sample Yields within acceptance criteria?			✓	✓
2.	Were all sample holding times met?	✓			✓
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			✓	✓
2.	Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?	✓			✓
3.	Is the Blank result ≤ the Contract Detection Limit?	✓			✓
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			✓	✓
5.	Is the LCS result within acceptance criteria?	✓			✓
6.	Is the LCS yield within acceptance criteria?			✓	✓
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?			✓	✓
8.	MS/MSD results and yield meet acceptance criteria?			✓	✓
9.	Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. 1.	**Other** Are all nonconformances included and noted?	✓			✓
2.	Are all required forms filled out?	✓			✓
3.	Correct methodology used?	✓			✓
4.	Transcription checked?	SK			WEV
5.	Were all calculations checked at a minimum frequency?	✓			✓
6.	Units checked?	✓			✓

Comments on any "No" response: No special Battelle requests on SAF or COC Report WHC 7 plus U235/238 DLP NCM generated. 1B-K40 - result < error, 1S, K40 due to natural occurrence - 226 > CL due to forced result 01-G02 - MBA > CL due to sample size, Xe131M, K40, Nb95 WEV 9/27/95 Delay report

Analyst: W. MacKellar Date: 9/27/95

Second Level Review: Suzy Jones Date: 10/23/95

Form No: LS-038, 3/94, Rev 2

9613446.2866

1026

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG #: RD-95-_____

Project ID: BHI NCM Initiated by: W. Mackellar

Sample Numbers: 508415 01-G02, M084151B, 1,5

Tests: Gamma

Matrix: Other

Analytical Area (check appropriate area):

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

Nonconformance (check appropriate area):

Holding Time Violations (exceeded by _____ days)

Category I: Laboratory Independent

- ☐ 1. Holding time expired in transit
- ☐ 2. Sample received > 48 hrs. or 1/2 holding time has expired
- ☐ 3. Test added by client after expiration

Category II: Laboratory Dependent

- ☐ 4. Instrument failure
- ☐ 5. Analyst error
- ☐ 6. Login error
- ☐ 7. Miscommunication
- ☐ 8. Other (complete description 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 (complete description required)

Quality Assurance/Quality Control

- ☒ 17. QC data reported outside of controls
- ☐ 18. Incorrect procedure used
- ☐ 19. SOP intentionally modified with QA and Tech. approval
- ☐ 20. Invalid instrument calibration
- ☒ 21. Insufficient sample received for proper analysis

Incorrect or Incomplete Client Deliverable

- ☐ 22. Hardcopy deliverable error
- ☐ 23. Electronic deliverable error

Reported detection limits elevated due to:

- ☐ 24. Sample matrix
- ☒ 25. Insufficient sample volume
- ☐ 26. Other (complete description required)
- ☐ 27. ***Other (specify):*** _____

Comments/Explanation: I stopes detected but not reported; MDA's >CL due to sample size.

Notification (check appropriate area):

Client notified by (name and date): _____

- ☐ in writing
- ☐ by facsimile
- ☐ by telephone
- ☐ other (explain)

Client's name and response: _____

- ☐ process "as is"
- ☐ re-sample
- ☐ on hold until _____
- ☐ other (explain)

Project Manager (signature and date): Sung Haines 10/23/95

0017

9613446.2867

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG#: RD-95-_____

Corrective Action

Root Cause Initial and date: WFM 9/27/95

1B - K40 detected but not reported - result < 2X's error. 1F - K40 detected but due to natural occurance in nature - Ra226 result > 2σ. 9/27/95 20 recovery (74.2%). Result was forced by the NO septum - since this wasn't detected the results not background corrected. 01 - G02 - MDA's > CL due to small sample size - volumes reduced due to screening results - K40 detected but result < 2X's error on 02 - 4 all samples

Corrective Action Initial and Date: WFM 9/27/95

showed Nb95 + Xe131M but not reported - ghost peaks from U daughters -

Accept the LCS on the Cs137 recovery - blank within limit dup is acceptable - Report data + note in the case narrative -

Responsibility for performing CA assigned to: _____

Actions to prevent recurrence Initial and Date: _____

N/A

First Level Supervisor: W. McKellar Date: 9/27/95

Responsible Manager: Richard L Marsh Date: 10-23-95

Quality Assurance Review

☐ Anomaly ☑ Deficiency ☐ Rerun

☐ Further action required: _____

Assigned to: _____

QA signature: Beverly Johnson Date: 10/23/95

Corrective Action Verification

☑ Verified

☐ Cannot Verify (specify reason): _____

Nonconformance Memo Closure

QA signature/date: Beverly Johnson 10/23/95

9613446.2868

1022

Quanterra

Environmental Services

Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 508415 (RA) BHT OTHER

Lab Sample Numbers or SDG: W0636

Method/Test/Parameter: ALPHA

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?			✓	✓
B. 1.	**Sample Analysis** Are the sample Yields within acceptance criteria?			✓	✓
2.	Were all sample holding times met?	✓			✓
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			✓	✓
2.	Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?	✓			✓
3.	Is the Blank result ≤ the Contract Detection Limit?	✓			✓
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			✓	✓
5.	Is the LCS result within acceptance criteria?	✓			✓
6.	Is the LCS yield within acceptance criteria?			✓	✓
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?	✓			✓
8.	MS/MSD results and yield meet acceptance criteria?			✓	✓
9.	Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. 1.	**Other** Are all nonconformances included and noted?	✓			✓
2.	Are all required forms filled out?	✓			✓
3.	Correct methodology used?	✓			✓
4.	Transcription checked?	SK			TK
5.	Were all calculations checked at a minimum frequency?	✓			✓
6.	Units checked?	✓			✓

Comments on any "No" response:

Analyst: Joel Kempema Date: 10-13-95

Second Level Review: Suzy Haines Date: 10/23/95

Form No: LS-038, 3/94, Rev 2

Report reanalysis results for 2B, 25 + 01, report recount of reanalysis for 02 + 602

9613446.2869

429

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG #: RD-95-_____

Project ID: BHI

NCM Initiated by: Joel T Kengema 10-13-95

Sample Numbers: 5C841502, 6C841502

Tests: Alpha

Matrix: Other

Analytical Area (check appropriate area):

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

Nonconformance (check appropriate area):

Holding Time Violations (exceeded by _____ days)

Category I: Laboratory Independent

- ☐ 1. Holding time expired in transit
- ☐ 2. Sample received > 48 hrs. or 1/2 holding time has expired
- ☐ 3. Test added by client after expiration

Category II: Laboratory Dependent

- ☐ 4. Instrument failure
- ☐ 5. Analyst error
- ☐ 6. Login error
- ☐ 7. Miscommunication
- ☐ 8. Other (complete description 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 (complete description required)

Quality Assurance/Quality Control

- ☐ 17. QC data reported outside of controls
- ☐ 18. Incorrect procedure used
- ☐ 19. SOP intentionally modified with QA and Tech. approval
- ☐ 20. Invalid instrument calibration
- ☐ 21. Insufficient sample received for proper analysis

Incorrect or Incomplete Client Deliverable

- ☐ 22. Hardcopy deliverable error
- ☐ 23. Electronic deliverable error

Reported detection limits elevated due to:

- ☐ 24. Sample matrix
- ☐ 25. Insufficient sample volume
- ☐ 26. Other (complete description required)
- ☒ 27. ***Other (specify):*** Recount of reanalysis results -

Comments/Explanation: Samples recounted for 300 min.

Notification (check appropriate area):

Client notified by (name and date): _____

- ☐ in writing
- ☐ by telephone
- ☐ by facsimile
- ☐ other (explain)

Client's name and response: _____

- ☐ process "as is"
- ☐ on hold until _____
- ☐ re-sample
- ☐ other (explain)

Project Manager (signature and date): Suzy Haines 10/23/95

9613446.2870

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG#: RD-95-_____

Corrective Action

Root Cause Initial and date: JRC 10-13-95

To improve MDA / accuracy of results

Corrective Action Initial and Date: JRC 10-13-95

Recount of reanalysis results accepted

Responsibility for performing CA assigned to: _____

Actions to prevent recurrence Initial and Date: _____

First Level Supervisor: Joel Dengema Date: 10-13-95

Responsible Manager: W. Mackellar Date: 10/23/95

Quality Assurance Review

☐ Anomaly ☐ Deficiency ☑ Rerun

☐ Further action required: _____

Assigned to: _____

QA signature: Beverly Allen Date: 10/23/95

Corrective Action Verification

☑ Verified

☐ Cannot Verify (specify reason): _____

Nonconformance Memo Closure

QA signature/date: Beverly Allen 10/28/95

9613446.2871

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG #: RD-95- 329

Project ID: BHI NCM Initiated by: Joel Rengoma 10-10-95

Sample Numbers: M084151S, SC841502, GC841502

Tests: Alpha

Matrix: Other (resin)

Analytical Area (check appropriate area):

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

Nonconformance (check appropriate area):

Holding Time Violations (exceeded by _____ days)

Category I: Laboratory Independent

- ☐ 1. Holding time expired in transit
- ☐ 2. Sample received > 48 hrs. or 1/2 holding time has expired
- ☐ 3. Test added by client after expiration

Category II: Laboratory Dependent

- ☐ 4. Instrument failure
- ☐ 5. Analyst error
- ☐ 6. Login error
- ☐ 7. Miscommunication
- ☐ 8. Other (complete description required)

Category III: Analysis Reruns (QA/QC)

- ☐ 9. Surrogates JR 10-10-95
- ☐ 10. Internal Standards ~~10-4~~ JR ~~10~~ 10-10-95
- ☒ 11. Spike Recoveries ~~SC8~~ M084151S
- ☐ 12. Blank Contamination

Category IV: Analysis Reruns (Confirmation)

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

Quality Assurance/Quality Control

- ☐ 17. QC data reported outside of controls
- ☐ 18. Incorrect procedure used
- ☐ 19. SOP intentionally modified with QA and Tech. approval
- ☐ 20. Invalid instrument calibration
- ☐ 21. Insufficient sample received for proper analysis

Incorrect or Incomplete Client Deliverable

- ☐ 22. Hardcopy deliverable error
- ☐ 23. Electronic deliverable error

Reported detection limits elevated due to:

- ☐ 24. Sample matrix
- ☐ 25. Insufficient sample volume
- ☐ 26. Other (complete description required)
- ☐ 27. ***Other (specify):*** _____

Comments/Explanation: _____

Notification (check appropriate area):

Client notified by (name and date): _____

- ☐ in writing
- ☐ by telephone
- ☐ by facsimile
- ☐ other (explain)

Client's name and response: _____

- ☐ process "as is"
- ☐ on hold until _____
- ☐ re-sample
- ☐ other (explain)

Project Manager (signature and date): Suzy Daines 10/23/95

9613446.2872

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG#: RD-95- 329

Corrective Action

Root Cause Initial and date: JK 10-10-95

Incomplete plating of spike suspected

Corrective Action Initial and Date: JK 10-10-95

Reanalysis performed - reanalysis data accepted except 50841502 + 60841502 which the reanalysis data is being counted for an extended period of time to improve MDA. - Extended counts accepted LOF on 10/23/95

Responsibility for performing CA assigned to:

Actions to prevent recurrence Initial and Date:

Under investigation 10/23/95

First Level Supervisor: Joel Kempema Date: 10-13-95

Responsible Manager: W. MacKellar Date: 10/23/95

Quality Assurance Review

☑ Anomaly ☐ Deficiency ☐ Rerun

☐ Further action required:

Assigned to:

QA signature: Beverly Ethier Date: 10/23/95

Corrective Action Verification

☑ Verified

☐ Cannot Verify (specify reason): Pending investigation 10/23/95

Nonconformance Memo Closure

QA signature/date: Beverly Ethier 10/23/95

9613446.2873

S

Due 10-22-95

Quanterra Environmental Services

Data Review Checklist
RADIOCHEMISTRY BHI 508415-B

Work Order No(s): 508415

Lab Sample Numbers or SDG: W0686 08-415

Method/Test/Parameter: Beta - Other

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?			X	—
B. 1.	**Sample Analysis** Are the sample Yields within acceptance criteria?			X	—
2.	Were all sample holding times met?			X	—
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			X	—
2.	Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?	X			—
3.	Is the Blank result ≤ the Contract Detection Limit?	X			—
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			X	—
5.	Is the LCS result within acceptance criteria?	X			—
6.	Is the LCS yield within acceptance criteria?	X			—
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?	X			—
8.	MS/MSD results and yield meet acceptance criteria?			X	—
9.	Duplicate sample results and yield meet acceptance criteria?	X			—
D. 1.	**Other** Are all nonconformances included and noted?	X			—
2.	Are all required forms filled out?	X			—
3.	Correct methodology used?	X			—
4.	Transcription checked? M.W 9/27/95	✓			—
5.	Were all calculations checked at a minimum frequency?	X			—
6.	Units checked?	X			—

Comments on any "No" response:

Analyst: [signature] Date: 9/28/95

Second Level Review: Suzy Daines Date: 10/23/95

Form No: LS-038, 3/94, Rev 2

9613446.2874

10-22-95

Quanterra

Environmental Services

ITAS Data Review Checklist
RADIOCHEMISTRY

BHI - Resin

Work Order No(s): 508415

Lab Sample Numbers or SDG: W0686

Method/Test/Parameter: Tc-99 -

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?			✓	✓
B. 1.	**Sample Analysis** Are the sample Yields within acceptance criteria?			✓	✓
2.	Were all sample holding times met?	✓			✓
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			✓	✓
2.	Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?				✓
3.	Is the Blank result ≤ the Contract Detection Limit?	✓			✓
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			✓	✓
5.	Is the LCS result within acceptance criteria?	✓			✓
6.	Is the LCS yield within acceptance criteria?			✓	✓
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?			✓	✓
8.	MS/MSD results and yield meet acceptance criteria?		✓		✓
9.	Duplicate sample results and yield meet acceptance criteria?		✓		✓
D. 1.	**Other** Are all nonconformances included and noted?	✓			✓
2.	Are all required forms filled out?	✓			✓
3.	Correct methodology used?	✓			✓
4.	Transcription checked?	JM			JK
5.	Were all calculations checked at a minimum frequency?	✓			✓
6.	Units checked?	✓			✓

Comments on any "No" response:

Analyst: Joel Thompson Date: 10-18-95

Second Level Review: Suzy Haines Date: 10/23/95

Form No: LS-038, 3/94, Rev 2

9613446.2875

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG #: RD-95- 330

Project ID: BHI

NCM Initiated by: Joel Thompson 10-18-95

Sample Numbers: M084152B, M084152M, 50841501, G0841501, 50841502

Tests: Tc99

Matrix: Other

Analytical Area (check appropriate area):

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

Nonconformance (check appropriate area):

Holding Time Violations (exceeded by _____ days)

Category I: Laboratory Independent

- ☐ 1. Holding time expired in transit
- ☐ 2. Sample received > 48 hrs. or 1/2 holding time has expired
- ☐ 3. Test added by client after expiration

Category II: Laboratory Dependent

- ☐ 4. Instrument failure
- ☐ 5. Analyst error
- ☐ 6. Login error
- ☐ 7. Miscommunication
- ☐ 8. Other (complete description 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 (complete description required)

Quality Assurance/Quality Control

- ☐ 17. QC data reported outside of controls
- ☐ 18. Incorrect procedure used
- ☐ 19. SOP intentionally modified with QA and Tech. approval
- ☐ 20. Invalid instrument calibration
- ☐ 21. Insufficient sample received for proper analysis

Incorrect or Incomplete Client Deliverable

- ☐ 22. Hardcopy deliverable error
- ☐ 23. Electronic deliverable error

Reported detection limits elevated due to:

- ☒ 24. Sample matrix
- ☐ 25. Insufficient sample volume
- ☐ 26. Other (complete description required)
- ☒ 27. ***Other (specify):*** Reanalysis performed after a Spike & Matrix spike ID switch

Comments/Explanation: Reanalysis results for matrix spike & duplicate are outside accepted criteria

Notification (check appropriate area):

Client notified by (name and date): _____

- ☐ in writing
- ☐ by facsimile
- ☐ by telephone
- ☐ other (explain)

Client's name and response: _____

- ☐ process "as is"
- ☐ re-sample
- ☐ on hold until _____
- ☐ other (explain)

Project Manager (signature and date): Suzy Haines 10/23/95

9613446.2876

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG#: RD-95- 330

Corrective Action

Root Cause Initial and date: MK 10-18-95

(1) Dup at 10.7% error - non homogenous sample
(2) matrix spike out of limits due to extremely high sample activity & non-homogeneity of sample
(3) re analysis necessary after Technician labeling error.

Corrective Action Initial and Date: MK 10-18-95

Reanalysis data accepted, note MS & duplicate problems in case narrative.

Responsibility for performing CA assigned to:

Actions to prevent recurrence Initial and Date:

Continuing to Monitor BG 10/23/95

First Level Supervisor: Joel Klingerman Date: 10-18-95

Responsible Manager: G. MacKellar Date: 10/23/95

Quality Assurance Review

☑ Anomaly ☐ Deficiency ☐ Rerun

☐ Further action required:

Assigned to:

QA signature: Beverly Olivier Date: 10/23/95

Corrective Action Verification

☑ Verified

☐ Cannot Verify (specify reason):

Nonconformance Memo Closure

QA signature/date: Beverly Olivier 10/23/95

9613446.2877

anterra

Environmental Services

Data Review Checklist
RADIOCHEMISTRY BHI E.T.C.

Work Order No(s): 508415

W0686

Lab Sample Numbers or SDG: 08-415

Method/Test/Parameter: Uranium - Other

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?	✓			✓
B. 1.	**Sample Analysis** Are the sample Yields within acceptance criteria?			✓	✓
2.	Were all sample holding times met?	✓			✓
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			✓	✓
2.	Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?	✓			✓
3.	Is the Blank result ≤ the Contract Detection Limit?	✓			✓
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			✓	✓
5.	Is the LCS result within acceptance criteria?	✓			✓
6.	Is the LCS yield within acceptance criteria?			✓	✓
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?			✓	✓
8.	MS/MSD results and yield meet acceptance criteria?		✓		✓
9.	Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. 1.	**Other** Are all nonconformances included and noted?	✓			✓
2.	Are all required forms filled out?	✓			✓
3.	Correct methodology used?	✓			✓
4.	Transcription checked? M. W 10-4-95	✓			PK
5.	Were all calculations checked at a minimum frequency?	✓			✓
6.	Units checked?	✓			✓

Comments on any "No" response:

Analyst: Pam Kenitzer Date: 10-5-95

Second Level Review: Sergy Davies Date: 10/23/95

Form No: LS-038, 3/94, Rev 2

9613446.2878

1025

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG #: RD-95-_____

Project ID: BHI

NCM Initiated by: PK 10-3-95

Sample Numbers: 508415

Tests: uranium

Matrix: soil

Analytical Area (check appropriate area):

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

Nonconformance (check appropriate area):

Holding Time Violations (exceeded by _____ days)

Category I: Laboratory Independent

- ☐ 1. Holding time expired in transit
- ☐ 2. Sample received > 48 hrs. or 1/2 holding time has expired
- ☐ 3. Test added by client after expiration

Category II: Laboratory Dependent

- ☐ 4. Instrument failure
- ☐ 5. Analyst error
- ☐ 6. Login error
- ☐ 7. Miscommunication
- ☐ 8. Other (complete description 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 (complete description required)

Quality Assurance/Quality Control

- ☐ 17. QC data reported outside of controls
- ☐ 18. Incorrect procedure used
- ☐ 19. SOP intentionally modified with QA and Tech. approval
- ☐ 20. Invalid instrument calibration
- ☐ 21. Insufficient sample received for proper analysis

Incorrect or Incomplete Client Deliverable

- ☐ 22. Hardcopy deliverable error
- ☐ 23. Electronic deliverable error

Reported detection limits elevated due to:

- ☐ 24. Sample matrix
- ☐ 25. Insufficient sample volume
- ☐ 26. Other (complete description required)
- ☐ 27. ***Other (specify):*** No matrix spike was run.

Comments/Explanation: _____

Notification (check appropriate area):

Client notified by (name and date): _____

- ☐ in writing
- ☐ by telephone
- ☐ by facsimile
- ☐ other (explain)

Client's name and response: _____

- ☐ process "as is"
- ☐ on hold until _____
- ☐ re-sample
- ☐ other (explain)

Project Manager (signature and date): Suzy Davies 10/23/95

9613446.2879

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

LOG#: RD-95-_____

Corrective Action

Root Cause Initial and date: PK 10-3-95

The sample was highly concentrated in Uranium. Any spike would not have been seen in either of the 2 samples. This was determined by the screening sheet.

Corrective Action Initial and Date: PK 10-3-95

In this case there will be no reanalysis requested but in future cases even though the sample is expected to be highly conc. a matrix spike will be analyzed even if it is called "lost."

Responsibility for performing CA assigned to: _____

Actions to prevent recurrence Initial and Date: _____

First Level Supervisor: Pam Kemitzer Date: 10-3-95

Responsible Manager: W. MacKellar Date: 10/23/95

Quality Assurance Review

☐ Anomaly ☑ Deficiency ☐ Rerun

☐ Further action required: _____

Assigned to: _____

QA signature: Beverly Atkins Date: 10/23/95

Corrective Action Verification

☑ Verified

☐ Cannot Verify (specify reason): _____

Nonconformance Memo Closure

QA signature/date: Beverly Atkins 10/23/95

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: ☐ Priority ☒ Normal

Collector: Doug Bowers	Company Contact: C.W. Wittreich	Telephone No.: 376-1862
Project Designation: 200 UP-1 IX spent resin	Sampling Location: 200 west	SAF No.: B95-014
Ice Chest No.: SPL-503	Field Logbook No.	Method of Shipment: Hand deliver
Shipped To: Quanterra	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks: Unknown		
Special Handling and/or Storage: Cool to 4 C		

SAMPLE ANALYSIS: 508414 SDL W0686

Preservative	none	none	none	none	none	none	none	none
Type of Container	P/G	aGs	aG	aGs	P	P/G	G/P	G/P
No. of Container(s)	1	3	3	3	1	1	1	1
Volume	40 ml	40 ml	60 ml	40 ml	~~20 ml~~ 40 ml	1 L	20 ml	20 ml
	See Item #1 below	VOA	Semi-VOA	Anions F,Cl, PO4,NO2 ,NO3	NO2-NO3	See Item #2 below 508415	Activity Scan	Rad Screening 8/21/95

Sample No.	Matrix*	Date Sampled	Time Sampled														
B06HPZ01	RESIN	8/21/95	1225	X	X	X	X	X	X	X							

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
STEVEN J GREEN	8/21/95 1450	ERC B Wittreich	1450 8-21-95
ERC B Wittreich	8-21-95	Quanterra Karen Ostrinsky	8-24-95 13:45
		<100C	

SPECIAL INSTRUCTIONS

Data Deliverable-Summary
Sample analysis for phosphate, nitrate, and nirtite by EPA 300.0 is being requested for information only. The ERC contractor recognizes that the 48-hour hold time will not be met.
Sample matrix is - ion exchange resin.
For VOA and semi-VOA analysis, the resin material should be treated as a soil.
The samples should come from the mast contaminated section of the material.
Item #1 - ICP Metals -TAL AA Metals Arsenic,Lead,Selenium,Thallium Mercury Item #2 Total Alpha Total Beta,Tc-99,Total Uranium,Gamma Spec.

Matrix*

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9615146.0880

0032

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: Doug Bowers / K. Trapp	Company Contact: C.W. Wittreich	Telephone No.: 376-1862
Project Designation: 200 UP-1 IX spent resin	Sampling Location: 200 west	SAF No.: B95-014
Ice Chest No.: SAL-503	Field Logbook No.: EL-126	Method of Shipment: Hand deliver
Shipped To: Quanterra	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks: Unknown		
Special Handling and/or Storage: Cool to 4 C		

SAMPLE ANALYSIS: 508414 SDL W00686

Preservative	none	none	none	none	none	none	none	none
Type of Container	P/G	aGs	aG	aGs	P	P/G	G/P	G/P
No. of Container(s)	1	3	3	3	1	1	1	1
Volume	40 ml	40 mL	60 mL	40 mL	20 mL	1 L	20 mL	20 mL
	See Item #1 below	VOA	Semi-VOA	Anions F,Cl, PO4,NO2 ,NO3	NO2-NO3	See Item #2 below 508415	Activity Scan	Rad Screening

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0GHP3 02	X	8/22/95	0840	X	X	X	X	X	X	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: K. Trapp / K. Trapp	Date/Time: 8/22/95 1047	Received By: EPA B. Wittreich	Date/Time: 8-22-95 1047
Relinquished By: EPA B. Wittreich	Date/Time: 8-24-95	Received By: Quanterra	Date/Time: 8-24-95 1345
Relinquished By	Date/Time	Received By: <100C	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Data Deliverable-Summary
Sample analysis for phosphate, nitrate, and nirtite by EPA 300.0 is being requested for information only. The ERC contractor recognizes that the 48-hour hold time will not be met.
Sample matrix is - ion exchange resin.
For VOA and semi-VOA analysis, the resin material should be treated as a soil.
The samples should come from the mast contaminated section of the material.
Item #1 - ICP Metals -TAL AA Metals Arsenic,Lead,Selenium,Thallium Mercury Item #2 Total Alpha Total Beta,Tc-99,Total Uranium,Gamma Spec.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9513146.0001

0033

9613446.2882

08/23/95 08:16 ☎373 3176 2225 3B ☑002

SAMPLE STATUS REPORT FOR N 5822. RAD SCRFEN BOGHP2 TIME: 8/23/95 7:52
DISPATCHED: 8/18/95 9:49 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/23/95 7:48

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
4271	TOT-ACT	7.51282E 03 pCi/G	N	Y	XR5786

END OF REPORT

BOGHP2
BOGHP3
BW
8-24-95

9613446.2883

Emergency Contact 509-373-4800 EKG61

OFFSITE RADIOACTIVE SHIPMENT RECORD
- EXTERIOR INSPECTION PERMITTED -

23654

SHIPPING INST.

SHIP TO:
Company: Quantum
Address: 2811 Geo Washington Way
City, State, Zip: Richland, WA 99352
Attention: Karen Actenberg

Contractor: ☐ PNL ☐ KEH ☒ BHI ☐ WHC
Site Carrier: Bill Wharton
PR No. 84751 Veh. No. ID-2598

Ship: ☒ Prepaid ☐ Collect Via:
☒ Motor-Mail ☐ Air Psgr.
☐ Excl. Use ☐ Air Cargo
☒ DOE Veh. ☐ Mail
☐ UPS Sut ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name — Radioactive Material, — UN Number

1. Empty Packages ☐ UN 2908
2. Low Specific Activity, n.o.s ☐ UN 2912
3. Limited quantity, n.o.s. ☐ UN 2910
4. N.O.S. ☐ UN 2982
5. Fissile n.o.s. ☐ UN 2918
6. Special Form, n.o.s. ☐ UN 2974
7. Instruments & Articles ☐ UN 2911
8. Exempted Package ☒ UN2910

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act. (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:
Physical Form: ☒ Solid ☐ Liquid ☐ Gas
Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate
Other

TYPE PACKAGE: ☒ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly Cooler

FISSILE CLASS: ☐ Non Fissile ☒ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III
Grams Fissile

SNM: ☒ No ☐ Yes ☐ <1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified
Consignee authorized to receive this qty ☒
Sig. Security Svc. Req. ☐ NA ☒
Pu, EU > 1 g ☐ N/A NU, DU > 1 Kg ☐ N/A
Security Escorts Req. ☐ Not. Req. ☒
External Cask Temperature (Max. 122° F LTL, 180° F Ex. Use) N/A ☒ °F

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes
Complies with D. O. T. packaging marking and labeling requirements ☐ N/A ☒ Yes
Container acceptability documented (incl. 7A cert.) ☒ N/A ☐ Yes

Container examined: No evidence of deterioration or damage ☒ Yes
QA Inspection Current ☐ Yes ☒ N/A Seals required ☒ No ☐ Yes
Shipping Doc. 49 CFR Authorization No. N/A

No. Pkgs.	Model Package	COC/Spec. No.	Serial No.	Seal No.	Isotopes	Curies/Pkg	T. I.	Gr. Wt.
1	Strong Tight	N/A	N/A	N/A	Tc 99, U238, U235	35 mCi	N/A	5 lbs
Pd-code # SMX-503 contains sample vials of ion exchange resin. Samples are bagged & placed on ice with vermiculite for cushioning. Samples BOGAP2 and BOC-HP3								
(Shipper may describe package in detail on one of unused lines above)					TOTAL	35 mCi	N/A	5 lbs

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.

Certifier's Signature: S. J. Franklin Date: 8/24/95 Organization: Field Sampling Complete Cost Code (inc. end function): XR 5331

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)
Dose Rate at 1 Meter from Surface of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)
Smears of Outer Container: ☒ ≤22 dpm βγ/cm² ☒ ≤2.2 dpm α/cm²
TRUCK LOAD OR EXCLUSIVE USE: Surface: ☐ ≤ 200 mrem/hr (N + βγ) @6 feet: ☐ ≤ 10 mrem/hr (N + βγ) @Cab or Sleeper ☐ ≤2.0 mrem/hr (N + βγ) n/a SEH

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: S. Huff Bldg. 4701-C Survey No. RARA-2381 Date 8-24-95

AUTHORIZATION FOR SHIPMENT

APPROVAL

AIR TRANSPORT CERTIFICATION ▸ Cargo Only: ☐ Danger Labels Applied
Passenger: ☐ 1. Ltd. Qty. ☐ 2. ≤3 T.I ☐ 3. Research or Medical Diagnosis ☐ 4. Human Medical Research
Pkg. Dimensions

Traffic has inspected and verified preshipment compliance to DOT regulations.

Authorized Signature ▸ Ronald L. Clauson Printed Name ▸ RONALD L. CLAUSON Date ▸ 8-24-95

APPROVED FOR OFFSITE SHIPMENT

TRAFFIC

B. L. No. RMW-9543 Date Shipped 8-24-95 E. T. A. 8-24-95 Routing BHI Vehicle ☐ N/A
Placards ☐ Yes ☒ No
Surveyed By N/A Date N/A Approved for Shipment Westinghouse Hanford Company Ronald L. Clauson Date 8-24-95
Route Plan ☐ Yes ☒ No

Read By: Karen Actenberg Date: 8-24-95 13:45

54-6000-088 (10/88)

0035

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8-24-95 1345 Client Name 1341

Project/Client # B45-014 Batch or Case # _____

Cooler ID (if noted on outside of cooler) 5112563

1. Condition of shipping container? OK.
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 [ ] No [X]
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: 26
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 _____
12. Have any anomalies been identified above? Yes [ ] No [X]
13. Memos have been initiated for all anomalies identified above? Yes [ ]

Printed Name/Signature Karen Ostrowski Date/Time 8-24-95

508414 Chem
508415 Rad
[illegible]

Client Sample Screening Results

R3 8/24/95

24-Aug-95

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
WHC B0GHP2		8/24/95 1:45:00 PM	QUAD22C	8/24/95 3:17:43 PM	B0GHP2	30	388	12.8820833	12684	421.70875
01	SOLID		Bkg:	8/24/95 4:45:19 AM	BKG	800	41	0.05125	873	1.09125
Aml Date: 8/24/95	Tot Sa, Alq: 7.18E+02	, 1.00E-02	Alp; (Dpm/ 2.33E+01	(uCi/ 7.52E+02	(pCi/ 1.05E+06	± 6.2E+04	CAT III	4.8E-05	Lab Alq Lig	R3 8/24
Ppt mg: 0.001	Units: g	, mg	Bet; Alq): 7.76E+02	Sa): 2.51E+04	Lig): 3.50E+07	± 3.1E+05		2.9E-06		
Aml Date: 8/24/95	Tot Sa, Alq: 7.18E+02	, 1.53E+01	Alp; (Dpm/ 2.81E+01	(uCi/ 5.94E-01	(pCi/ 8.27E+02	± 5.0E+01	CAT III	6.0E-02	Lab Alq Lig	
Ppt mg: 15.3	Units: g	, mg	Bet; Alq): 8.10E+02	Sa): 1.71E+01	Lig): 2.38E+04	± 2.1E+02		4.2E-03		
WHC B0GHP3		8/24/95 1:45:00 PM	QUAD22D	8/24/95 3:17:43 PM	B0GHP3	30	344	11.4116667	11960	397.69167
02	SOLID		Bkg:	8/24/95 4:45:19 AM	BKG	800	44	0.055	780	0.975
Aml Date: 8/24/95	Tot Sa, Alq: 1.00E+00	, 1.00E-03	Alp; (Dpm/ 2.04E+01	(uCi/ 9.18E+00	(pCi/ 9.18E+06	± 5.9E+05	CAT III	5.4E-06	Lab Alq Lig	R3 8/24
Ppt mg: 0.001	Units: g	, mg	Bet; Alq): 7.38E+02	Sa): 3.32E+02	Lig): 3.32E+08	± 3.0E+06		3.0E-07		
Aml Date: 8/24/95	Tot Sa, Alq: 5.84E+02	, 1.99E+01	Alp; (Dpm/ 2.58E+01	(uCi/ 3.41E-01	(pCi/ 5.83E+02	± 3.8E+01	CAT III	8.6E-02	Lab Alq Lig	
Ppt mg: 19.9	Units: g	, mg	Bet; Alq): 7.74E+02	Sa): 1.02E+01	Lig): 1.75E+04	± 1.6E+02		5.7E-03		
WHC B0GHP4		8/24/95 1:45:00 PM	QUAD23A	8/24/95 3:17:47 PM	B0GHP4	30	30	0.96125	122	3.0929167
	LIQUID		Bkg:	8/24/95 4:45:28 AM	BKG	800	31	0.03875	779	0.97375
Aml Date: 8/24/95	Tot Sa, Alq: 1.00E+00	, 1.00E+01	Alp; (Dpm/ 3.00E+00	(uCi/ 1.35E-04	(pCi/ 1.35E+02	± 3.0E+01	CAT I	1.8E-01	Lab Alq Lig	
Ppt mg: 7.6	Units: L	, ml	Bet; Alq): 5.38E+00	Sa): 2.42E-04	Lig): 2.42E+02	± 3.1E+01		2.1E-01		
WHC TEDF082495001		8/24/95 10:54:00 AM	QUAD22B	8/24/95 3:17:43 PM	TEDF082495001	30	3	0.03375	36	0.22375
	LIQUID		Bkg:	8/24/95 4:45:19 AM	BKG	800	53	0.06625	781	0.97625
Aml Date: 8/24/95	Tot Sa, Alq: 5.00E-01	, 1.00E+01	Alp; (Dpm/ 1.08E-01	(uCi/ 2.43E-06	(pCi/ 4.86E+00	± 2.3E+01	CAT I	5.1E+00	Lab Alq Lig	
Ppt mg: 9.4	Units: L	, ml	Bet; Alq): 4.12E-01	Sa): 9.27E-06	Lig): 1.85E+01	± 1.8E+01		2.7E+00		

9613446.2885

0037

9613446.2886 *** GAMMA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

25-Aug-1995
Page 1

CUSTOMER: BHI SAF

SAMPLE DELIVERY GROUP W0686

MATRIX : OTHER B95-014

BATCH NUMBER 08-415

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
*)	M0841518		BHI		Fine Ottawa Sand
*)	M0841518		BHI		cal 790
3)	50841501		BHI	BOGHP2	
4)	50841502		BHI	BOGHP3	
	G0841502				dup

ACTIONS (Initial & Date)

1) INITIATED JH 8/25/95

2) PREP LAB RECEIVED 9/11/95 RVE

3) SAMPLE REMAINDER STORED 9/14/95 RVE

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB 9/14/95

6) DATA REVIEWED AND ANALYTICAL PREP STORED WF ~ 9/27/95

9613446.2887 *** ALPHA ***

P-22

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

25-Aug-1995
Page 1

CUSTOMER: BHI SAF

SAMPLE DELIVERY GROUP W0686

MATRIX : OTHER B95-014

BATCH NUMBER 08-415

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
*)	M084151B		BHI		Blank EQEG 923 RVE 9-22-95
*)	M084151S		BHI		EQEG 923 10,077 ± .086698 DPM
3)	50841501		BHI	BOGHP2	High activity reduced aliquot
4)	50841502 G0941S02		BHI	BOGHP3	dup / High activity reduced aliquot

ACTIONS (Initial & Date)

1) INITIATED JH 8/25/95

2) PREP LAB RECEIVED 9/11/95 RVE

3) SAMPLE REMAINDER STORED 9/22/95 RVE

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB BD 9/27/95

6) DATA REVIEWED AND ANALYTICAL PREP STORED JK 10-2-95

9613446.2888 *** BETA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

25-Aug-1995
Page 1

CUSTOMER: BHI SAF

SAMPLE DELIVERY GROUP W0686

MATRIX : OTHER B95-014

BATCH NUMBER 08-415

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
*)	M084151B		BHI		Blank
*)	M084151S		BHI		EQAU 407 30.192 ± .32679 pCi/SA
3)	50841501		BHI	BOGHP2	High activity reduced aliquot
4)	50841502 G0841502		BHI	BOGHP3	High activity reduced aliquot

ACTIONS (Initial & Date)

1) INITIATED JH 8/25/95

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED 9/22/95 [illegible]

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB [illegible] 9/22/95

6) DATA REVIEWED AND ANALYTICAL PREP STORED SF 9/28/95.

9613446.2889 *** TC-99 ***

10-22 95

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

25-Aug-1995
Page 1

CUSTOMER: BHI SAF

SAMPLE DELIVERY GROUP W0686

MATRIX : OTHER B95-014

BATCH NUMBER 08-415

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	M084151N		M084151B	H0841502	
	M084152N		M084151M	G0841502	
*)	M084151B		BHI		
*)	M084151S		BHI		
3)	50841501		BHI	BOGHP2	0.10 g.
	H0841502				0.1 g.
4)	50841502		BHI	BOGHP3	0.1 g.
	G0841502	Dup.			0.1 g.

ACTIONS (Initial & Date)

1) INITIATED 8/25/95

2) PREP LAB RECEIVED 9/11/95 RVS

3) SAMPLE REMAINDER STORED

4) SEPARATION LAB RECEIVED 9/20/95 MN

5) COUNTING/MEASUREMENT LAB 10/4/95

6) DATA REVIEWED AND ANALYTICAL PREP STORED

10/22/95

9613446.2890 *** URANIUM ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

25-Aug-1995
Page 1

CUSTOMER: BHI SAF

SAMPLE DELIVERY GROUP W0686

MATRIX : OTHER B95-014

BATCH NUMBER 08-415

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
*)	M084151B		BHI		
*)	M084151S		BHI		
3)	50841501		BHI	BOGHP2 ~~AHTO~~	ALIQUOTS REDUCED DUE TO SCREENING
	G0841501	DUP			" " " " "
4)	50841502		BHI	BOGHP3	" " " " "

ACTIONS (Initial & Date)

1) INITIATED 8/25/95

2) PREP LAB RECEIVED 9/11/95 RDE
REC 9-15-95 gN

3) SAMPLE REMAINDER STORED 9-19-95 gN

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB 10/3/95

6) DATA REVIEWED AND ANALYTICAL PREP STORED RK 10-5-95

0042

~~1042~~

DB 10/23/95