W02116

Quanterra
Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

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0048750

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

January 20, 1998

Attention: Joan Kessner

MAR 1998 RECEIVED EDMC

JAN 1998 RECEIVED Data Log In

Project number	:	550.230
Date Received by Lab	:	December 12, 1997
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W02116
Data Deliverable	:	Summary

I. Introduction

On December 12, 1997, one (1) water sample was received by Quanterra, Richland and was transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the sample was given the following laboratory ID number to correspond with the specific client ID:

St. Louis ID	BHI ID	Richland ID	Matrix	Date of Receipt
16465-001	B0ML92	71218001	Water	12-DEC-97

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: Volatiles by EPA 8260. Appendix IX Volatiles by EPA 8240. Total Residual Chlorine by EPA Method 330.1. Sulfate by EPA Method 375.4. pH by EPA Method 150.1. ICAP Metals by EPA Method 6010. Arsenic by EPA Method 7060. Acrylamide by EPA Method 8316. Total Suspended Solids by EPA Method 160.1. Total Dissolved Solids by EPA Method 160.2.

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 were performed per the protocol for each analyte in this SDG. Total Residual Chlorine, Total Dissolved Solids, Total Suspended Solids, and pH require only a Sample Duplicate for matrix QC.

IV. Definitions

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

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

V. Comments

Shipping and Receiving
There were no variances associated with sample receipt.

Volatiles-8260
There are no comments or nonconformances associated with this analysis.

Appendix IX Volatiles-8240
There are no comments or nonconformances associated with this analysis.

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

Metals
Samples 16465-001, 16465-001S and 16465-001SD were prepped for ICP 50 mls to 50 mls due to limited sample volume.

Wet Chemistry
There are no comments or nonconformances associated with these analyses.

Quanterra
Environmental Services

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$\hanford\hanw2116.nar

W02116

Quanterra December 16, 1997 05:23 pm

Account: 10727 Project: 550.230 Quanterra-Richland QAS No. 550.23 Rev. 1

Master Sample Login: 16465

Project Manager: W. Price

Draft: Final Entered and Reviewed by: S. Lowmen PM Review: [signature]

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16465-001	B0ML92	Water	09-DEC-97 07:58	12-DEC-97 11:27	16-JAN-98	AIRBORNE	1	Screening not Required
RICHLAND ID 71218001								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	HPLC/8316/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345623:99 345624:98 345625:97)
3		VOA/8260/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345620:89 345621:88 345622:87)
3		VOA/APPIX/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345617:92 345618:91 345619:90)
1	AN Amber Glass 500ml	AS/7060/Q4	S	HNO3	09-JAN-98	07-JUN-98	T14C	(345612:97)
1		ICAP/6010/Q4	S	HNO3	09-JAN-98	07-JUN-98	T14C	(345613:96)
1	PN - Plastic-1L	CL/330.3/Q4	S	COLD	09-JAN-98	11-DEC-97	T14C	(345616:93)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	09-JAN-98	16-DEC-97	T14C	(345614:95)
1		TSS/160.2/Q4	S	COLD	09-JAN-98	16-DEC-97	T14C	(345615:94)
1	PN Plastic-250ml	SO4/375.4/Q4	S	COLD	09-JAN-98	06-JAN-98	T14C	(345611:98)
1	PW Plastic-128oz	PH/150.1/Q4	S	COLD	09-JAN-98	10-DEC-97	T14C	(345610:99)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16465-001DUP	B0ML92	Water	09-DEC-97 07:58	12-DEC-97 11:27	16-JAN-98	AIRBORNE	1	Screening not Required
RICHLAND ID 71218001								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	PN - Plastic 1L	CL/330.3/Q4	S	COLD	09-JAN-98	11-DEC-97	T14C	(345616:93)
1	PN Plastic 500ml	TDS/160.1/Q4	S	COLD	09-JAN-98	16-DEC-97	T14C	(345614:95)
1		TSS/160.2/Q4	S	COLD	09-JAN-98	16-DEC-97	T14C	(345615:94)
1	PN Plastic 250ml	SO4/375.4/Q4	S	COLD	09-JAN-98	06-JAN-98	T14C	(345611:98)
1	PW - Plastic 128oz	PH/150.1/Q4	S	COLD	09-JAN-98	10-DEC-97	T14C	(345610:99)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16465-001MS	B0ML92	Water	09-DEC-97 07:58	12-DEC-97 11:27	16-JAN-98	AIRBORNE	1	Screening not Required
RICHLAND ID 71218001								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	HPLC/8316/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345623:99 345624:98 345625:97)
3		VOA/8260/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345620:89 345621:88 345622:87)
3		VOA/APPIX/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345617:92 345618:91 345619:90)
1	AN Amber Glass 500ml	AS/7060/Q4	S	HNO3	09-JAN-98	07-JUN-98	T14C	(345612:97)
1		ICAP/6010/Q4	S	HNO3	09-JAN-98	07-JUN-98	T14C	(345613:96)
1	PN Plastic-250ml	SO4/375.4/Q4	S	COLD	09-JAN-98	06-JAN-98	T14C	(345611:98)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16465-001MSD	B0ML92	Water	09-DEC-97 07:58	12-DEC-97 11:27	16-JAN-98	AIRBORNE	1	Screening not Required
RICHLAND ID 71218001								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	HPLC/8316/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345623:99 345624:98 345625:97)
3		VOA/8260/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345620:89 345621:88 345622:87)
3		VOA/APPIX/Q4	S	HCL	09-JAN-98	23-DEC-97	109N	(345617:92 345618:91 345619:90)
1	AN - Amber Glass 500ml	AS/7060/Q4	S	HNO3	09-JAN-98	07-JUN-98	T14C	(345612:97)
1		ICAP/6010/Q4	S	HNO3	09-JAN-98	07-JUN-98	T14C	(345613:96)

**Sample has not been validated

Chain of Custody Record

Temp 4°C Cooler # 13523
ST 10 C 13236
T14C

Quanterra

QC

QUA-4124 0797

Client: Bechtel	Project Manager: A. Koprivica	Date: 12-10-97	Chain of Custody Number: 00268
Address:	Telephone Number (Area Code)/Fax Number:	Lab Number:	Page 1 of 1
City: / State: / Zip Code:	Site Contact:	Lab Contact:	
Project Name: SAF B98-009	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

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

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed	Soil		Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	
T1218001 BOML92	all	bottles											

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Due 1-23-98

QC Requirements (Specify): SDG-W02116

	Date	Time		Date	Time
1. Relinquished By: Heidelberg Quanterra	12-10-97	16:00	1. Received By: 2nd mitchell	12-11-97	0820
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-009-05	Page 1 of 2

Collector Doug Bowers	**Company Contact** RL Martin	**Telephone No.** 373-4483	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 183N Backwash Discharge Pond – Permit Monitoring 1998	**Sampling Location** 100N/183 Backwash		**SAF No.** B98-009	
Ice Chest No. Shipping Van 96-003	**Field Logbook No.** ~~FL-1309-1~~ EFL 1133-5		**Method of Shipment** Hand Delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.** PH		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage cool to 4 degrees C

SAMPLE ANALYSIS 71218001 SDG W02116

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	HNO3 to pH <2	HNO3 to pH <2	None	Cool 4C	HCl to pH <2 Cool 4C
Type of Container	P	P	P	P	P	P	P	P	aGs*	aGs*
No. of Container(s)	1	1	1	1	1	1	1	1	3	3
Volume	20ml	125ml	250ml	500ml	500ml	500ml	500ml	1000ml	40ml	40ml
	Activity Scan	pH - 150.1	Sulfate – 375.4	TDS - 160.1	TSS - 160.2	Arsenic - 7060 - (GFAA)	ICP Metals - 6010A (TAL)	Chlorine (Total residual) - 330.3	Acrylamide - 8316	VOA - 8240A (Append IX)
				14	15	12	13		23 24 25	17 18 19

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	pH - 150.1	Sulfate – 375.4	TDS - 160.1	TSS - 160.2	Arsenic - 7060 - (GFAA)	ICP Metals - 6010A (TAL)	Chlorine (Total residual) - 330.3	Acrylamide - 8316	VOA - 8240A (Append IX)
B0ML92	Water	12-9-97	0758	X	X	X	X	X	X	X	X	X	X
					100	100	100	100	100	100	100	3X100	3X100
												12-10	12-10

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Amy Bamer	12-9-97/1127	Hidelbrand	12-9-97 1127
Relinquished By	Date/Time	Received By L100CPMJ	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

** EPA330 3 - The ERC Contractor acknowledges the specified holding time is not likely achievable

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-009-05	Page 2 of 2

Collector Doug Bowers	**Company Contact** RL Martin	**Telephone No.** 373-4483	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 183N Backwash Discharge Pond -- Permit Monitoring 1998	**Sampling Location** 100N/183 Backwash		**SAF No.** B98-009	
Ice Chest No. Shipping Van 96-003	**Field Logbook No.** ~~EL-1309-1~~ EFL 1133-5 ~~K-33 12-9-97~~		**Method of Shipment** Hand Delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
cool to 4 degrees C

SAMPLE ANALYSIS

71218001

Preservation	HCl to pH <2 Cool 4C									
Type of Container	aGs*									
No. of Container(s)	3									
Volume	40ml									
	VOA - 8260A (TCL)									

Sample No.	Matrix *	Sample Date	Sample Time										
B0ML92	Water	12-9-97	0758	X									
				3									
				12-13									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time 12-9-97/1127	Received By	Date/Time 1127 12-9-97
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.
** EPA330.3 - The ERC Contractor acknowledges the specified holding time is not likely achievable.

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	Disposal Method	Disposed By	Date/Time

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 12/9 1130 SG#: W02116

Work Order Number: 712180 SAF #: B98-009

Shipping Container ID: 96-003 Chain of Custody # B98-009-05

1. Custody Seals on shipping container intact? Yes [✓] No [ ]
2. Custody Seals dated and signed? Yes [✓] No [ ]
3. Chain-of-Custody record present? Yes [✓] No [ ]
4. Cooler temperature 6°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓] na
6. Number of samples in shipping container: 17
7. Sample holding times exceeded? Yes [ ] No [✓]

8. Samples have:
   - ✓ tape
   - ✓ custody seals
   - ____ hazard labels
   - ____ appropriate sample labels

9. Samples are:
   - ✓ in good condition
   - ____ broken
   - ____ leaking
   - ____ have air bubbles

10. Where any anomalies identified in sample receipt? Yes [ ] No [✓]
11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Heidelberg Date: 12-9-97

Telephoned To: _____ On _____ By _____

000009

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

Job No. 22192
Written Response Required: NO
CCN: N/A
OII: N/A
TSD: N/A
ERA: N/A
Subject Code: [illegible]

TO:	W. S. Thompson	N1-28	DATE:	February 29, 1996
	G. C. Henckel	H4-80		
COPIES:	K. A. Smith	X0-23	FROM:	S. K. De Mers
	T. L. Lafreniere	X0-23		Radiological Controls
	D. E. Gergely	X0-23		T7-05/373-1913

SUBJECT: Total Activities for Off-Site Shipments of Groundwater Samples to NRC Licensed Laboratories

There is no need to perform total activities prior to offsite shipment to NRC licensed labs of samples taken from ground water wells located on the Hanford Site.

All wells reviewed to date for radiological content have shown no well with a total activity in excess of 2,000,000 pCi/l (2,000 pCi/gm), the Department Of Transportation limit for radioactive material. The highest activity in any known well is 1.56×10^6 pCi/l H^3.

While this does not constitute any release from radiological controls for worker protection, it does allow samples to be shipped based on historical laboratory data and save the expense of doing radiochemical analysis.

A copy of the most recent analytical data should be provided to the NRC licensed laboratory with the samples being shipped or if no data is available for new wells, the most recent data from adjacent wells.

(B) 12/10/97

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0MHT5		12/10/1997	QUAD22C	2/10/1997 10:39:59 A	B0MHT5	30	3	0	28	0.0266667
	LIQUID		Bkg:	2/10/1997 12:23:16 A	BKG	600	60	0.1	544	0.9066667

Anl Date: 12/10/1997 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ -9.19E-04 (uCi/ -4.14E-08 (pCi/ -4.14E-02 ± 1.8E+01 CAT I 1.0E+00 Lab
Ppt mg: 0 Units: L , ml Bet; Alq): 4.96E-02 Sa): 2.23E-06 L|g): 2.23E+00 ± 1.6E+01 2.2E+01 Alq L|g

PGW B0MHV6		12/10/1997	QUAD22D	2/10/1997 10:39:59 A	B0MHV6	30	8	0.18666667	39	0.4283333
	LIQUID		Bkg:	2/10/1997 12:23:16 A	BKG	600	48	0.08	523	0.8716667

Anl Date: 12/10/1997 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 5.41E-01 (uCi/ 2.44E-05 (pCi/ 2.44E+01 ± 2.1E+01 CAT I 1.0E+00 Lab
Ppt mg: 0 Units: L , ml Bet; Alq): 6.91E-01 Sa): 3.11E-05 L|g): 3.11E+01 ± 1.8E+01 1.6E+00 Alq L|g

PGW B0MHY4		12/10/1997	QUAD23A	2/10/1997 10:40:04 A	B0MHY4	30	76	2.45166667	202	5.9
	LIQUID		Bkg:	2/10/1997 12:23:22 A	BKG	600	49	0.08166667	500	0.8333333

Anl Date: 12/10/1997 Tot Sa, Alq: 3.00E+00 , 1.00E+01 Alp; (Dpm/ 7.08E+00 (uCi/ 9.56E-04 (pCi/ 3.19E+02 ± 3.7E+01 CAT I 7.8E-02 Lab
Ppt mg: 2 Units: L , ml Bet; Alq): 9.72E+00 Sa): 1.31E-03 L|g): 4.38E+02 ± 3.8E+01 1.1E-01 Alq L|g

PGW B0MHY6		12/10/1997	QUAD23B	2/10/1997 10:40:04 A	B0MHY6	30	36	1.13666667	104	2.5333333
	LIQUID		Bkg:	2/10/1997 12:23:22 A	BKG	600	38	0.06333333	560	0.9333333

Anl Date: 12/10/1997 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 3.48E+00 (uCi/ 1.57E-04 (pCi/ 1.57E+02 ± 3.1E+01 CAT I 1.6E-01 Lab
Ppt mg: 2.9 Units: L , ml Bet; Alq): 4.13E+00 Sa): 1.86E-04 L|g): 1.86E+02 ± 2.8E+01 2.7E-01 Alq L|g

PGW B0MHY7		12/10/1997	QUAD23C	2/10/1997 10:40:04 A	B0MHY7	30	68	2.21666667	179	5.0666667
	LIQUID		Bkg:	2/10/1997 12:23:22 A	BKG	600	30	0.05	540	0.9

Anl Date: 12/10/1997 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 6.42E+00 (uCi/ 2.89E-04 (pCi/ 2.89E+02 ± 3.6E+01 CAT I 8.6E-02 Lab
Ppt mg: 2.2 Units: L , ml Bet; Alq): 8.50E+00 Sa): 3.83E-04 L|g): 3.83E+02 ± 3.7E+01 1.3E-01 Alq L|g

PGW B0ML92		12/10/1997	QUAD23D	2/10/1997 10:40:04 A	B0ML92	30	10	0.28333333	59	1.1016667
	LIQUID		Bkg:	2/10/1997 12:23:22 A	BKG	600	30	0.05	519	0.865

Anl Date: 12/10/1997 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 8.25E-01 (uCi/ 3.72E-05 (pCi/ 3.72E+01 ± 2.1E+01 CAT I 6.7E-01 Lab
Ppt mg: 1.1 Units: L , ml Bet; Alq): 1.92E+00 Sa): 8.65E-05 L|g): 8.65E+01 ± 2.2E+01 5.8E-01 Alq L|g

000011

Quanterra Environmental Services

BW&SL
013236

Login No.: 164465

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland

Date: 12-10-97 Time: 0825

Project No: 550-230

Initiated by: Fred M Mitchell

Shipper/No: Airborne

RFA/COC Numbers: no Rich COC B98-009

Condition/Variance (Check all that apply):

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

☐ No variances were noted during sample receipt. Cooler Temperature Upon Receipt: 4°C

Notes:

Corrective Action:

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

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

☐ Sample(s) processed "as is".

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) Fred Mitchell Date: 12-10-97

Project Management Review: [signature] Date: 12/16/97

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

Quanterra
Environmental Services

BW&SL

013523

Login No.: 16462

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland

Date: 12-11-97 Time: 0820

Project No: 550.230

Initiated by: [illegible]

Shipper/No: Airborne 5999695-214

RFA/COC Numbers: 268

Condition/Variance (Check all that apply):

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

☐ No variances were noted during sample receipt. Cooler Temperature Upon Receipt 4°C

Notes: VOA Recv 12-10-97

Corrective Action:

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

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

☐ Sample(s) processed "as is".

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: [illegible] Date: 12-11-97

Project Management Review: [illegible] Date: 12/16/97

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-SOMN-0004 Revision 11/24/95

000013

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Acrylamide
Method: SW-846 8316
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/19/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
BOML92	16465-001	Acrylamide	79-06-1	QCBLK160575-1	12/15/97	12/15/97	100	UG/L	U	100	1
BOML92	16465-001MS	Acrylamide	79-06-1	QCBLK160575-1	12/15/97	12/15/97	110	%REC			1
BOML92	16465-001MSD	Acrylamide	79-06-1	QCBLK160575-1	12/15/97	12/15/97	112	%REC			1
NA	QCBLK160575-1	Acrylamide	79-06-1	QCBLK160575-1	12/15/97	12/15/97	100	UG/L	U	100	1
NA	QCSPK160575-1	Acrylamide	79-06-1	QCBLK160575-1	12/15/97	12/15/97	108	%REC			1

1D
ACRYLAMIDE ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMDL3

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: W02116

Matrix : (soil/water) WATER Lab Sample ID: 16465-001

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 12-09-97

% Moisture: not dec. _____ dec. _____ Date Extracted: _____

Extraction: (SepF/Cont/Sonc/Shak) _____ Date Analyzed: 12-15-97

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (mg/L or mg/Kg) UG/L	Q
79-06-1	ACRYLAMIDE	100	U

U: Concentration of analyte is less than the value given.

FORM I HBH

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: ICP Metals-6010A (TAL)
Method: EPA 6010
Matrix: LIQUID

Client ID: BOML92

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Quanterra ID : 16465-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162009-1	01/09/98	01/12/98	248	UG/L		200	1
Antimony	7440-36-0	QCBLK162009-1	01/09/98	01/12/98	42.5	UG/L	U	60.0	1
Barium	7440-39-3	QCBLK162009-1	01/09/98	01/12/98	28.2	UG/L	B	200	1
Beryllium	7440-41-7	QCBLK162009-1	01/09/98	01/12/98	0.58	UG/L	B	5.0	1
Cadmium	7440-43-9	QCBLK162009-1	01/09/98	01/12/98	3.3	UG/L	U	5.0	1
Calcium	7440-70-2	QCBLK162009-1	01/09/98	01/12/98	26800	UG/L		5000	1
Chromium	7440-47-3	QCBLK162009-1	01/09/98	01/12/98	2.7	UG/L	U	10.0	1
Cobalt	7440-48-4	QCBLK162009-1	01/09/98	01/12/98	4.3	UG/L	U	50.0	1
Copper	7440-50-8	QCBLK162009-1	01/09/98	01/12/98	13.3	UG/L	B	25.0	1
Iron	7439-89-6	QCBLK162009-1	01/09/98	01/12/98	220	UG/L		100	1
Magnesium	7439-95-4	QCBLK162009-1	01/09/98	01/12/98	4390	UG/L	B	5000	1
Manganese	7439-96-5	QCBLK162009-1	01/09/98	01/12/98	7.1	UG/L	B	15.0	1
Nickel	7440-02-0	QCBLK162009-1	01/09/98	01/12/98	14.6	UG/L	U	40.0	1
Potassium	7440-09-7	QCBLK162009-1	01/09/98	01/12/98	2180	UG/L	U	5000	1
Silver	7440-22-4	QCBLK162009-1	01/09/98	01/12/98	6.0	UG/L	U	10.0	1
Sodium	7440-23-5	QCBLK162009-1	01/09/98	01/12/98	5160	UG/L		5000	1
Vanadium	7440-62-2	QCBLK162009-1	01/09/98	01/12/98	12.3	UG/L	B	50.0	1
Zinc	7440-66-6	QCBLK162009-1	01/09/98	01/12/98	14.3	UG/L	B	20.0	1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: ICP Metals-6010A (TAL)
Method: EPA 6010
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID: B0ML92

Quanterra ID : 16465-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162009-1	01/09/98	01/12/98	102	%REC			1
Antimony	7440-36-0	QCBLK162009-1	01/09/98	01/12/98	110	%REC			1
Barium	7440-39-3	QCBLK162009-1	01/09/98	01/12/98	103	%REC			1
Beryllium	7440-41-7	QCBLK162009-1	01/09/98	01/12/98	109	%REC			1
Cadmium	7440-43-9	QCBLK162009-1	01/09/98	01/12/98	98	%REC			1
Calcium	7440-70-2	QCBLK162009-1	01/09/98	01/12/98	106	%REC			1
Chromium	7440-47-3	QCBLK162009-1	01/09/98	01/12/98	101	%REC			1
Cobalt	7440-48-4	QCBLK162009-1	01/09/98	01/12/98	104	%REC			1
Copper	7440-50-8	QCBLK162009-1	01/09/98	01/12/98	105	%REC			1
Iron	7439-89-6	QCBLK162009-1	01/09/98	01/12/98	102	%REC			1
Magnesium	7439-95-4	QCBLK162009-1	01/09/98	01/12/98	107	%REC			1
Manganese	7439-96-5	QCBLK162009-1	01/09/98	01/12/98	103	%REC			1
Nickel	7440-02-0	QCBLK162009-1	01/09/98	01/12/98	103	%REC			1
Potassium	7440-09-7	QCBLK162009-1	01/09/98	01/12/98	109	%REC			1
Silver	7440-22-4	QCBLK162009-1	01/09/98	01/12/98	86	%REC			1
Sodium	7440-23-5	QCBLK162009-1	01/09/98	01/12/98	104	%REC			1
Vanadium	7440-62-2	QCBLK162009-1	01/09/98	01/12/98	105	%REC			1
Zinc	7440-66-6	QCBLK162009-1	01/09/98	01/12/98	107	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: ICP Metals-6010A (TAL)
Method: EPA 6010
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID: BOML92

Quanterra ID : 16465-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162009-1	01/09/98	01/12/98	100	%REC			1
Antimony	7440-36-0	QCBLK162009-1	01/09/98	01/12/98	98	%REC			1
Barium	7440-39-3	QCBLK162009-1	01/09/98	01/12/98	99	%REC			1
Beryllium	7440-41-7	QCBLK162009-1	01/09/98	01/12/98	105	%REC			1
Cadmium	7440-43-9	QCBLK162009-1	01/09/98	01/12/98	93	%REC			1
Calcium	7440-70-2	QCBLK162009-1	01/09/98	01/12/98	102	%REC			1
Chromium	7440-47-3	QCBLK162009-1	01/09/98	01/12/98	98	%REC			1
Cobalt	7440-48-4	QCBLK162009-1	01/09/98	01/12/98	100	%REC			1
Copper	7440-50-8	QCBLK162009-1	01/09/98	01/12/98	101	%REC			1
Iron	7439-89-6	QCBLK162009-1	01/09/98	01/12/98	101	%REC			1
Magnesium	7439-95-4	QCBLK162009-1	01/09/98	01/12/98	103	%REC			1
Manganese	7439-96-5	QCBLK162009-1	01/09/98	01/12/98	99	%REC			1
Nickel	7440-02-0	QCBLK162009-1	01/09/98	01/12/98	100	%REC			1
Potassium	7440-09-7	QCBLK162009-1	01/09/98	01/12/98	105	%REC			1
Silver	7440-22-4	QCBLK162009-1	01/09/98	01/12/98	97	%REC			1
Sodium	7440-23-5	QCBLK162009-1	01/09/98	01/12/98	101	%REC			1
Vanadium	7440-62-2	QCBLK162009-1	01/09/98	01/12/98	102	%REC			1
Zinc	7440-66-6	QCBLK162009-1	01/09/98	01/12/98	104	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Arsenic-7060-(GFAA)
Method: EPA 7000 Series
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
BOML92	16465-001	Arsenic	7440-38-2	QCBLK161963-1	01/09/98	01/09/98	1.8	UG/L	U	10.0	1
BOML92	16465-001MS	Arsenic	7440-38-2	QCBLK161963-1	01/09/98	01/09/98	97	%REC			1
BOML92	16465-001MSD	Arsenic	7440-38-2	QCBLK161963-1	01/09/98	01/09/98	101	%REC			1
NA	QCLCS161963-1	Arsenic	7440-38-2	QCBLK161963-1	01/09/98	01/09/98	99	%REC			1
NA	QCBLK161963-1	Arsenic	7440-38-2	QCBLK161963-1	01/09/98	01/09/98	1.8	UG/L	U	10.0	1

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA_MO_____ Contract: 550.230___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W02116 _____

SOW No.: SW846

EPA Sample No.	Lab Sample ID
_B0ML92_____	_16465-001____
_B0ML92SD_____	_16465-001SD__
_B0ML92S_____	_16465-001S___

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0ML92

Lab Name: QUANTERRA_MO Contract: 550.230
Lab Code: ITMO Case No.: SAS No.: SDG No.: W02116
Matrix (soil/water): WATER Lab Sample ID: 16465-001
Level (low/med): LOW Date Received: 12/12/97
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	248			P
7440-36-0	Antimony	42.5	U		P
7440-38-2	Arsenic	1.8	U		F
7440-39-3	Barium	28.2	B		P
7440-41-7	Beryllium	0.58	B		P
7440-43-9	Cadmium	3.3	U		P
7440-70-2	Calcium	26800			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	4.3	U		P
7440-50-8	Copper	13.3	B		P
7439-89-6	Iron	220			P
7439-95-4	Magnesium	4390	B		P
7439-96-5	Manganese	7.1	B		P
7440-02-0	Nickel	14.6	U		P
7440-09-7	Potassium	2180	U		P
7440-22-4	Silver	6.0	U		P
7440-23-5	Sodium	5160			P
7440-62-2	Vanadium	12.3	B		P
7440-66-6	Zinc	14.3	B		P

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

Comments:

FORM I - IN

SW-846

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: VOA-8240A (Appendix IX)
Method: EPA 8240
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID: BOML92

Quanterra ID : 16465-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Dichlorodifluoromethane	75-71-8	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Chloromethane	74-87-3	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Acrolein	107-02-8	QCBLK160847-1	12/16/97	12/16/97	100	UG/L	U	100	1
Methylene Chloride	75-09-2	QCBLK160847-1	12/16/97	12/16/97	2	UG/L	BJ	5	1
Acetone	67-64-1	QCBLK160847-1	12/16/97	12/16/97	20	UG/L	U	20	1
Trichlorofluoromethane	75-69-4	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Allyl chloride	107-05-1	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	10	1
Carbon Disulfide	75-15-0	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Acetonitrile	75-05-8	QCBLK160847-1	12/16/97	12/16/97	100	UG/L	U	100	1
Propionitrile	107-12-0	QCBLK160847-1	12/16/97	12/16/97	100	UG/L	U	100	1
1,1-Dichloroethane	75-34-3	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Iodomethane	74-88-4	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK160847-1	12/16/97	12/16/97	50	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
2-Chloro-1,3-butadiene	126-99-8	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Methacrylonitrile	126-98-7	QCBLK160847-1	12/16/97	12/16/97	100	UG/L	U	100	1
2-Butanone (MEK)	78-93-3	QCBLK160847-1	12/16/97	12/16/97	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Vinyl Acetate	108-05-4	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
Bromodichloromethane	75-27-4	QCBLK160847-1	12/16/97	12/16/97	1	UG/L	J	5	1
1,2-Dichloropropane	78-87-5	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Methyl methacrylate	80-62-6	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Ethyl methacrylate	97-63-2	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Dibromomethane	74-95-3	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,2-Dibromoethane	106-93-4	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,4-Dioxane	123-91-1	QCBLK160847-1	12/16/97	12/16/97	500	UG/L	U	500	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK160847-1	12/16/97	12/16/97	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK160847-1	12/16/97	12/16/97	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,1,1,2-Tetrachloroethane	630-20-6	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
trans,1,4-Dichloro-2-butene	110-57-6	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,2,3-Trichloropropane	96-18-4	QCBLK160847-1	12/16/97	12/16/97	5	UG/L	U	5	1
1,2-Dibromo-3-chloropropane	96-12-8	QCBLK160847-1	12/16/97	12/16/97	10	UG/L	U	10	1
1-Methyl-2-piperidinemethanol	20845-34-5	QCBLK160847-1	12/16/97	12/16/97	6	UG/L	JN		1
Column Bleed	TIC-666	QCBLK160847-1	12/16/97	12/16/97	22	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK160847-1	12/16/97	12/16/97	89	%REC			1
Bromofluorobenzene	460-00-4	QCBLK160847-1	12/16/97	12/16/97	92	%REC			1
1,2-Dichloroethane-d4	17070-07-0	QCBLK160847-1	12/16/97	12/16/97	102	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: VOA-8240A (Appendix IX)
Method: EPA 8240
Matrix: LIQUID

Client ID: BOML92

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Quanterra ID : 16465-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK160847-1	12/16/97	12/16/97	129	%REC			1
Trichloroethene	79-01-6	QCBLK160847-1	12/16/97	12/16/97	96	%REC			1
Benzene	71-43-2	QCBLK160847-1	12/16/97	12/16/97	117	%REC			1
Toluene	108-88-3	QCBLK160847-1	12/16/97	12/16/97	83	%REC			1
Chlorobenzene	108-90-7	QCBLK160847-1	12/16/97	12/16/97	110	%REC			1
Toluene-d8	2037-26-5	QCBLK160847-1	12/16/97	12/16/97	80	%REC			1
Bromofluorobenzene	460-00-4	QCBLK160847-1	12/16/97	12/16/97	93	%REC			1
1,2-Dichloroethane-d4	17070-07-0	QCBLK160847-1	12/16/97	12/16/97	117	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: VOA-8240A (Appendix IX)
Method: EPA 8240
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID: BOML92

Quanterra ID : 16465-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK160847-1	12/16/97	12/16/97	122	%REC			1
Trichloroethene	79-01-6	QCBLK160847-1	12/16/97	12/16/97	102	%REC			1
Benzene	71-43-2	QCBLK160847-1	12/16/97	12/16/97	104	%REC			1
Toluene	108-88-3	QCBLK160847-1	12/16/97	12/16/97	89	%REC			1
Chlorobenzene	108-90-7	QCBLK160847-1	12/16/97	12/16/97	105	%REC			1
Toluene-d8	2037-26-5	QCBLK160847-1	12/16/97	12/16/97	86	%REC			1
Bromofluorobenzene	460-00-4	QCBLK160847-1	12/16/97	12/16/97	92	%REC			1
1,2-Dichloroethane-d4	17070-07-0	QCBLK160847-1	12/16/97	12/16/97	98	%REC			1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOML92

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02116

Matrix: (soil/water) WATER Lab Sample ID: 16465-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0251

Level: (low/med) LOW Date Received: 12/12/97

% Moisture: not dec. _____ Date Analyzed: 12/16/97

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	50	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl acetate	10	U
75-27-4	Bromodichloromethane	1	J
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	5	U
108-88-3	Toluene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOML92

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02116

Matrix: (soil/water) WATER Lab Sample ID: 16465-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0251

Level: (low/med) LOW Date Received: 12/12/97

% Moisture: not dec. _____ Date Analyzed: 12/16/97

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
107-02-8	Acrolein	100	U
75-05-8	Acetonitrile	100	U
74-88-4	Iodomethane	5	U
107-05-1	Allyl chloride	5	U
126-99-8	2-Chloro-1,3-butadiene	5	U
107-12-0	Propionitrile	100	U
126-98-7	Methacrylonitrile	100	U
123-91-1	1,4-Dioxane	500	U
80-62-6	Methyl methacrylate	5	U
75-95-3	Dibromomethane	5	U
97-63-2	Ethyl methacrylate	5	U
106-93-4	1,2-Dibromoethane	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
110-57-6	trans-1,4-dichloro-2-butene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
75-71-8	Dichlorodifluoromethane	10	U
75-69-4	Trichlorofluoromethane	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOML92

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02116

Matrix: (soil/water) WATER Lab Sample ID: 16465-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0251

Level: (low/med) LOW Date Received: 12/12/97

% Moisture: not dec. _____ Date Analyzed: 12/16/97

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

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	20845-34-5	1-Methyl-2-piperidinemethano	20.525	6	NJ
2.		Column Bleed	26.626	22	J
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3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Volatiles 8260 (TCL)
Method: EPA 8260
Matrix: LIQUID

Client ID: BOML92

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Quanterra ID : 16465-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK160620-1	12/12/97	12/12/97	2	UG/L	J	10	1
Bromomethane	74-83-9	QCBLK160620-1	12/12/97	12/12/97	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK160620-1	12/12/97	12/12/97	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK160620-1	12/12/97	12/12/97	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK160620-1	12/12/97	12/12/97	3	UG/L	BJ	5	1
Acetone	67-64-1	QCBLK160620-1	12/12/97	12/12/97	20	UG/L	B	20	1
Carbon Disulfide	75-15-0	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK160620-1	12/12/97	12/12/97	39	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK160620-1	12/12/97	12/12/97	3	UG/L	BJ	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK160620-1	12/12/97	12/12/97	1	UG/L	J	5	1
1,2-Dichloropropane	78-87-5	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK160620-1	12/12/97	12/12/97	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK160620-1	12/12/97	12/12/97	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK160620-1	12/12/97	12/12/97	5	UG/L	U	5	1
Unknown	TIC-2	QCBLK160620-1	12/12/97	12/12/97	16	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK160620-1	12/12/97	12/12/97	105	%REC			1
Bromofluorobenzene	460-00-4	QCBLK160620-1	12/12/97	12/12/97	106	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK160620-1	12/12/97	12/12/97	115	%REC			1

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Project: 550.230

Category: Volatiles 8260 (TCL)
Method: EPA 8260
Matrix: LIQUID

Client ID: BOML92

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Quanterra ID : 16465-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK160620-1	12/12/97	12/12/97	116	%REC			1
Trichloroethene	79-01-6	QCBLK160620-1	12/12/97	12/12/97	87	%REC			1
Benzene	71-43-2	QCBLK160620-1	12/12/97	12/12/97	92	%REC			1
Toluene	108-88-3	QCBLK160620-1	12/12/97	12/12/97	75	%REC			1
Chlorobenzene	108-90-7	QCBLK160620-1	12/12/97	12/12/97	86	%REC			1
Toluene-d8	2037-26-5	QCBLK160620-1	12/12/97	12/12/97	96	%REC			1
Bromofluorobenzene	460-00-4	QCBLK160620-1	12/12/97	12/12/97	105	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK160620-1	12/12/97	12/12/97	115	%REC			1

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Project: 550.230

Category: Volatiles 8260 (TCL)
Method: EPA 8260
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID: B0ML92

Quanterra ID : 16465-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK160620-1	12/12/97	12/12/97	116	%REC			1
Trichloroethene	79-01-6	QCBLK160620-1	12/12/97	12/12/97	92	%REC			1
Benzene	71-43-2	QCBLK160620-1	12/12/97	12/12/97	96	%REC			1
Toluene	108-88-3	QCBLK160620-1	12/12/97	12/12/97	71	%REC			1
Chlorobenzene	108-90-7	QCBLK160620-1	12/12/97	12/12/97	89	%REC			1
Toluene-d8	2037-26-5	QCBLK160620-1	12/12/97	12/12/97	89	%REC			1
Bromofluorobenzene	460-00-4	QCBLK160620-1	12/12/97	12/12/97	107	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK160620-1	12/12/97	12/12/97	120	%REC			1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0ML92

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: WO2116

Matrix: (soil/water) WATER Lab Sample ID: 16465-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: BSMP0516

Level: (low/med) LOW Date Received: 12/12/97

% Moisture: not dec. _____ Date Analyzed: 12/12/97

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

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0ML92

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: WO2116

Matrix: (soil/water) WATER Lab Sample ID: 16465-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: BSMP0516

Level: (low/med) LOW Date Received: 12/12/97

% Moisture: not dec. _____ Date Analyzed: 12/12/97

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	24.780	16	J
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Project: 550.230

Category: pH EPA 150.1
Method: EPA 150.1
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0ML92	16465-001	pH	PH	QCBLK161478-1	12/31/97	12/31/97	7.10	PH UNITS			
B0ML92	16465-001DUP	pH	PH	QCBLK161478-1	12/31/97	12/31/97	7.14	PH UNITS			
NA	QCBLK161478-1	pH	PH	QCBLK161478-1	12/31/97	12/31/97	4.95	PH UNITS			

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Project: 550.230

Category: Sulfate
Method: EPA 375.4
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/19/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
BOML92	16465-001	Sulfate	14808-79-8	QCBLK162237-1	01/06/98	01/06/98	31.8	MG/L		5.00	1
BOML92	16465-001DUP	Sulfate	14808-79-8	QCBLK162237-1	01/06/98	01/06/98	33.4	MG/L		5.00	1
BOML92	16465-001MS	Sulfate	14808-79-8	QCBLK162237-1	01/06/98	01/06/98	106	%REC			1
NA	QCBLK162237-1	Sulfate	14808-79-8	QCBLK162237-1	01/06/98	01/06/98	5.00	MG/L	U	5.00	1
NA	QCLCS162237-1	Sulfate	14808-79-8	QCBLK162237-1	01/06/98	01/06/98	97	%REC			1

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Project: 550.230

Category: TDS
Method: EPA 160.1
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0ML92	16465-001	Total Dissolved	TDS	QCBLK160858-1	12/16/97	12/16/97	125	MG/L		5.00	1
B0ML92	16465-001DUP	Total Dissolved	TDS	QCBLK160858-1	12/16/97	12/16/97	135	MG/L		5.00	1
NA	QCBLK160858-1	Total Dissolved	TDS	QCBLK160858-1	12/16/97	12/16/97	5.00	MG/L	U	5.00	1
NA	QCLCS160858-1	Total Dissolved	TDS	QCBLK160858-1	12/16/97	12/16/97	100	%REC			1

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Project: 550.230

Category: Total Residual Chlorine
Method: EPA 330.3
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0ML92	16465-001	Residual Chlori	7782-50-5a	QCBLK161920-1	01/08/98	01/08/98	2.39	MG/L		0.10	1
B0ML92	16465-001DUP	Residual Chlori	7782-50-5a	QCBLK161920-1	01/08/98	01/08/98	2.41	MG/L		0.10	1
NA	QCBLK161920-1	Residual Chlori	7782-50-5a	QCBLK161920-1	01/08/98	01/08/98	0.10	MG/L	U	0.10	1
NA	QCLCS161920-1	Residual Chlori	7782-50-5a	QCBLK161920-1	01/08/98	01/08/98	106	%REC			1

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Project: 550.230

Category: Total Suspended Solids (160.2)
Method: EPA 160.2
Matrix: LIQUID

Sample Date : 12/09/97
Receipt Date : 12/12/97
Report Date : 01/14/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
BOML92	16465-001	Total Suspended	TSS	QCBLK160831-1	12/16/97	12/16/97	2.0	MG/L		1.00	1
BOML92	16465-001DUP	Total Suspended	TSS	QCBLK160831-1	12/16/97	12/16/97	1.0	MG/L		1.00	1
NA	QCBLK160831-1	Total Suspended	TSS	QCBLK160831-1	12/16/97	12/16/97	1.00	MG/L	U	1.00	1
NA	QCLCS160831-1	Total Suspended	TSS	QCBLK160831-1	12/16/97	12/16/97	99	%REC			1