W02245

Quanterra
Environmental Services

0049313

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
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CASE NARRATIVE

APR 1998
RECEIVED
Data
Log In

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

April 2, 1998

Attention: Joan Kessner

Project number	:	550.230
Date Received by Lab	:	February 19, 1998
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W02245
Data Deliverable	:	Summary

JUN 1998
RECEIVED
EDMC

I. Introduction

On February 19,1998, one (1) water sample was received by Quanterra, Richland and 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
16998-001	B0N6J4	80228901	Water	19-FEB-98

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 Method 8260. Total Residual Chlorine by EPA Method 330.3. Sulfate by EPA Method 375.4. pH by EPA Method 150.1.

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 this SDG. pH and Total Residual Chlorine analyses require a Sample Duplicate as 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 are no comments or nonconformances associated with the shipping and receiving of these samples.

Volatiles 8260
The surrogate recoveries for Toluene-d8 on sample 16998-001 and 16998-001MS are reported outside of recommended QC guidelines. See NCM #3995.

Wet Chemistry
There are no comments or nonconformances associated with this analysis.

Bechtel Hanford Incorporated
April 2, 1998
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I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Robert E. White
Project Manager

LOG #: 3995

LABORATORY NONCONFORMANCE MEMO (NCM)

Quanterra Incorporated

W02245

Project ID/Client: 500.230 / Hanford

NCM Initiated by/Date: JMurphy 022698 Project Manager: Bob White

Sample Numbers/QC batch or lot numbers: 16998-001 + 16998-001 MS

Tests: VOA/8260/Q4

Analytical Area (check appropriate area):

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

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

Holding Time Violations (exceeded by _____ days)

Category I: Laboratory Independent

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

Category II: Laboratory Dependent

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

Category III: Analysis Reruns (QA/QC)

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

Category IV: Analysis Reruns (Confirmation)

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

Category V: Analysis Reruns (Dilution)

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

Quality Assurance/Quality Control

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

Incorrect or Incomplete Client Deliverable

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

Reported Detection Limits Elevated Due to:

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

Miscellaneous

- ☐ 30. Instrument/equipment Tag-out
- ☑ 31. Other (explanation required) surrogate Toluene-d8 low

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

Client notified by (name and date): Robert E. White 4/2/98

- ☑ In writing
- ☐ By telephone
- ☐ By facsimile
- ☐ Other (explain)

Client's name and response: JOAN KERSNER

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

Project manager (signature and date): Robert E. White 4/2/98 noted in case narrative

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QUANTERRA LABORATORY NONCONFORMANCE MEMO

LOG #: 3995

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

Problem Description/Root Cause Author's initials and date: ~~[illegible]~~ 02-26-98

16998-001 and -001 MS were run on instrument MSB with T-d8 surrogate outside QC range. Sample was rerun on MSE after an initial calibration and T-d8 was outside QC range for 16998-001 + -001 MS 16998-001 MSD on MSB was inside QC range for T-d8.

Corrective Actions (Short Term) Author's initials and date: ~~[illegible]~~ 022698

As is.

2/26/98

Corrective Actions to Prevent Reoccurrence (Long Term)

~~Rerun samples, however; this looks like unusual matrix effect.~~ We rerun samples and results were same. Corrective action is unknown.

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

Additional Comments:

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

Date Corrective Action is to be completed:

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

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

☐ Further action required:

Further action assigned to:

QA signature: [illegible] Date: 2/26/98

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

☐ Verification not required or requested

☐ Verified / CA completed on: by

☒ Cannot verify (specify reason) Unknown why this low surrogate was repeatable

Verified by: Date:

Nonconformance Memo Closure:

QA signature: [illegible] Date: 2/26/98

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

000006

WO 2245

Quanterra February 21, 1998 01:19 pm
Account: 10722 Project: 550.230 Quanterra-Richland QAS No. 550.23 Rev. 1
Master Sample Login: 16998

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: [signature] PM Review: Robert E. White

Sample Header Template:

Sample No. / # Data:	Client ID / Container Type	Analysis	C-Matrix	Date: Collected / Class	Preservative	Received / Anal. Due Date	Due / Hold Date	Shipper / Site	Rad Category	Rad Sample No. / (Container Numbers:% Filled)
16998-001	B0N6J4		Water	19-FEB-98 08:39		19-FEB-98 10:55	11-MAR-98	AIR BORNE	1	Screening not Required
RICHLAND I.D. 80228901										
3	VI - Vial-40ml	VOA/8260/Q4		S	HCL	05-MAR-98	05-MAR-98	109U		(359625:100 359626:99 359627:98)
1	PN - Plastic-1L	CL/330.3/Q4		S	COLD	05-MAR-98	21-FEB-98	T6F		(359624:100)
1	PN - Plastic-250ml	SO4/375.4/Q4		S	COLD	05-MAR-98	19-MAR-98	T6F		(359628:97)
1	PN - Plastic-120ml	PH/150.1/Q4		S	COLD	05-MAR-98	20-FEB-98	T6F		(359623:100)
16998-001DUP	B0N6J4		Water	19-FEB-98 08:39		19-FEB-98 10:55	11-MAR-98	AIR BORNE	1	Screening not Required
RICHLAND I.D. 80228901										
1	PN - Plastic-1L	CL/330.3/Q4		S	COLD	05-MAR-98	21-FEB-98	T6F		(359624:100)
1	PN - Plastic-250ml	SO4/375.4/Q4		S	COLD	05-MAR-98	19-MAR-98	T6F		(359628:97)
1	PN - Plastic-120ml	PH/150.1/Q4		S	COLD	05-MAR-98	20-FEB-98	T6F		(359623:100)
16998-001MS	B0N6J4		Water	19-FEB-98 08:39		19-FEB-98 10:55	11-MAR-98	AIR BORNE	1	Screening not Required
RICHLAND I.D. 80228901										
3	VI - Vial-40ml	VOA/8260/Q4		S	HCL	05-MAR-98	05-MAR-98	109U		(359625:100 359626:99 359627:98)
1	PN - Plastic-250ml	SO4/375.4/Q4		S	COLD	05-MAR-98	19-MAR-98	T6F		(359628:97)
16998-001MSD	B0N6J4		Water	19-FEB-98 08:39		19-FEB-98 10:55	11-MAR-98	AIR BORNE	1	Screening not Required
RICHLAND I.D. 80228901										
3	VI - Vial-40ml	VOA/8260/Q4		S	HCL	05-MAR-98	05-MAR-98	109U		(359625:100 359626:99 359627:98)

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3*=Sample has not been rad screened.

T6F Temp 4°C Cur# 14282
ST 10WD 14255

Chain of Custody Record

Quanterra QC

QUA-4124 0797

Client	Project Manager	Date	Chain of Custody Number
Bechtel	A. Kopriwa	2-20-98	00455

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 COC

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis	Special Instructions/ Conditions of Receipt
80228901 BON6J4	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 _____

QC Requirements (Specify): SDG W02245

	Date	Time		Date	Time
1. Relinquished By: Heidelberg QES	2-20-98	16:00	1. Received By: [signature]	2-20-98	0930
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

800008

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-009-10	Page 1 of 1

Collector Renee Nielson	**Company Contact** Joe Zoric **Telephone No.** 373-4315	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 183N Backwash Discharge Pond -- Permit Monitoring 1998	**Sampling Location** 100N	**SAF No.** B98-009	
Ice Chest No. ERC-96-089	**Field Logbook No.** EL-1309-1	**Method of Shipment** Gov Vehicle	
Shipped To Quanterra Incorporated	**Offsite Property No.**	**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Preservation	None	None	Cool 4C	None	HCl to pH <2 Cool 4C						
Type of Container	P	P	P	P	aGs*						
No. of Container(s)	1	1	1	1	3						
Volume	20ml	125ml	250ml	1000ml	40ml						
SAMPLE ANALYSIS SDG 80228901 W02245	Activity Scan	pH - 150 1	Sulfate -- 375 4	Chlorine (Total residual) - 330 3	VOA - 8260A (TCL)						

Sample No.	Matrix *	Sample Date	Sample Time										
B0N6J4	Water	2/19/98	0839	X	X	X	X	X					
					100	100	100	3X100					
					~~2-19~~	~~2-19~~	~~2-19~~	~~2-19~~	2				

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson	2/19/98/1055	[signature]	2/19/98 1055
		2100CPM	

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

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 2/19 1050 SG#: _____

Work Order Number: _____ SAF #: B98-009

Shipping Container ID: 96-089 Chain of Custody # B98-009-10

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 30
5. Vermiculite/packing materials is Wet [ ] Dry [✓] n/a
6. Number of samples in shipping container: 7
7. Sample holding times exceeded? Yes [ ] No [✓] 2/19/98

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: [signature] Date: 2/19/98

Telephoned To: _____ On _____ By _____

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(P3) 2/20/98

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
PGW B0N0C7		2/20/1998	QUAD22C	2/20/1998 8:09:50 AM	B0N0C7	30	6	0.12857143	34	0.1590476
	LIQUID		Bkg:	2/20/1998 1:28:17 AM	BKG	700	50	0.07142857	682	0.9742857

Anl Date: 2/20/1998 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 3.72E-01 (uCi/ 1.67E-05 (pCi/ 1.67E+01 ± 2.0E+01 CAT I 1.5E+00 Lab
Ppt mg: 0 Units: L , ml Bet; Alq): 2.14E-01 Sa): 9.63E-06 L|g): 9.63E+00 ± 1.7E+01 5.2E+00 Alq L|g

PGW B0N1V3		2/20/1998	QUAD22D	2/20/1998 8:09:50 AM	B0N1V3	30	22	0.67047619	93	2.1771429
	LIQUID		Bkg:	2/20/1998 1:28:17 AM	BKG	700	44	0.06285714	646	0.9228571

Anl Date: 2/20/1998 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 1.99E+00 (uCi/ 8.95E-05 (pCi/ 8.95E+01 ± 2.6E+01 CAT I 2.8E-01 Lab
Ppt mg: 2.3 Units: L , ml Bet; Alq): 3.71E+00 Sa): 1.67E-04 L|g): 1.67E+02 ± 2.7E+01 3.0E-01 Alq L|g

PGW B0N246		2/20/1998	QUAD23A	2/20/1998 8:10:03 AM	B0N246	30	72721	2423.96905	591958	19730.980
	SOLID		Bkg:	2/20/1998 1:28:25 AM	BKG	700	45	0.06428571	667	0.9528571

Anl Date: 2/20/1998 Tot Sa, Alq: 1.00E+02 , 9.84E+01 Alp; (Dpm/ 1.52E+04 (uCi/ 6.96E+00 (pCi/ 6.96E+04 ± 2.3E+02 CAT III 7.2E-04 Lab
Ppt mg: 98.4 Units: g , mg Bet; Alq): 4.15E+04 Sa): 1.90E+01 L|g): 1.90E+05 ± 2.5E+02 5.3E-04 Alq L|g

PGW B0N6J4		2/20/1998	QUAD23B	2/20/1998 8:09:54 AM	B0N6J4	30	10	0.26904762	62	1.1180952
	LIQUID		Bkg:	2/20/1998 1:28:25 AM	BKG	700	45	0.06428571	664	0.9485714

Anl Date: 2/20/1998 Tot Sa, Alq: 1.00E+00 , 1.00E+01 Alp; (Dpm/ 7.93E-01 (uCi/ 3.57E-05 (pCi/ 3.57E+01 ± 2.2E+01 CAT I 7.0E-01 Lab
Ppt mg: 1.3 Units: L , ml Bet; Alq): 1.96E+00 Sa): 8.82E-05 L|g): 8.82E+01 ± 2.2E+01 5.7E-01 Alq L|g

PGW TEDF0219981		2/20/1998	QUAD23C	2/20/1998 8:09:54 AM	TEDF0219981	30	14	0.41238095	72	1.5071429
	LIQUID		Bkg:	2/20/1998 1:28:25 AM	BKG	700	38	0.05428571	625	0.8928571

Anl Date: 2/20/1998 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp; (Dpm/ 1.22E+00 (uCi/ 2.75E-05 (pCi/ 5.50E+01 ± 2.4E+01 CAT I 4.5E-01 Lab
Ppt mg: 4.3 Units: L , ml Bet; Alq): 2.69E+00 Sa): 6.06E-05 L|g): 1.21E+02 ± 2.4E+01 4.1E-01 Alq L|g

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Quanterra Environmental Services

BWT SL

014255

Login No.: 16998

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Ashland

Date: 2-20-98 Time: 0830

Project No: 550.230

Initiated by: Fred Mitchell

Shipper/No: A/B 599 9742 512

RFA/COC Numbers: No COC

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: BON6J4 : 2-19-98 0839
"Liter-P-Chlorine", "250ml-P; Sulfate" "125ml-P- PH"
3X40ml Glass VOA 8260

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: 2-20-98

Project Management Review: Robert E. White Date: 2-22-98

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID: 80N6J4

Quanterra ID : 16998-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK165951-1	02/24/98	02/24/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK165951-1	02/24/98	02/24/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK165951-1	02/24/98	02/24/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK165951-1	02/24/98	02/24/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	BJ	5	1
Acetone	67-64-1	QCBLK165951-1	02/24/98	02/24/98	18	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK165951-1	02/24/98	02/24/98	52	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK165951-1	02/24/98	02/24/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK165951-1	02/24/98	02/24/98	2	UG/L	J	5	1
1,2-Dichloropropane	78-87-5	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK165951-1	02/24/98	02/24/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK165951-1	02/24/98	02/24/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK165951-1	02/24/98	02/24/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK165951-1	02/24/98	02/24/98	12	UG/L	J		1
Unknown-2	TIC-33	QCBLK165951-1	02/24/98	02/24/98	18	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK165951-1	02/24/98	02/24/98	67	%REC	*		1
Bromofluorobenzene	460-00-4	QCBLK165951-1	02/24/98	02/24/98	94	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK165951-1	02/24/98	02/24/98	104	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
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Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID: BON6J4

Quanterra ID : 16998-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK165951-1	02/24/98	02/24/98	103	%REC			1
Trichloroethene	79-01-6	QCBLK165951-1	02/24/98	02/24/98	98	%REC			1
Benzene	71-43-2	QCBLK165951-1	02/24/98	02/24/98	106	%REC			1
Toluene	108-88-3	QCBLK165951-1	02/24/98	02/24/98	73	%REC			1
Chlorobenzene	108-90-7	QCBLK165951-1	02/24/98	02/24/98	100	%REC			1
Toluene-d8	2037-26-5	QCBLK165951-1	02/24/98	02/24/98	65	%REC	*		1
Bromofluorobenzene	460-00-4	QCBLK165951-1	02/24/98	02/24/98	93	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK165951-1	02/24/98	02/24/98	104	%REC			1

Bechtel Hanford Incoporated
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Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID: BOW6J4

Quanterra ID : 16998-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK165951-1	02/24/98	02/24/98	111	%REC			1
Trichloroethene	79-01-6	QCBLK165951-1	02/24/98	02/24/98	97	%REC			1
Benzene	71-43-2	QCBLK165951-1	02/24/98	02/24/98	104	%REC			1
Toluene	108-88-3	QCBLK165951-1	02/24/98	02/24/98	96	%REC			1
Chlorobenzene	108-90-7	QCBLK165951-1	02/24/98	02/24/98	98	%REC			1
Toluene-d8	2037-26-5	QCBLK165951-1	02/24/98	02/24/98	86	%REC			1
Bromofluorobenzene	460-00-4	QCBLK165951-1	02/24/98	02/24/98	91	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK165951-1	02/24/98	02/24/98	101	%REC			1

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Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID: BON6J4

Quanterra ID : 16998-001RE1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK166054-1	02/25/98	02/25/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK166054-1	02/25/98	02/25/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK166054-1	02/25/98	02/25/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK166054-1	02/25/98	02/25/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	BJ	5	1
Acetone	67-64-1	QCBLK166054-1	02/25/98	02/25/98	19	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK166054-1	02/25/98	02/25/98	65	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK166054-1	02/25/98	02/25/98	2	UG/L	J	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK166054-1	02/25/98	02/25/98	2	UG/L	J	5	1
1,2-Dichloropropane	78-87-5	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK166054-1	02/25/98	02/25/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK166054-1	02/25/98	02/25/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK166054-1	02/25/98	02/25/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK166054-1	02/25/98	02/25/98	15	UG/L	J		1
Unknown-2	TIC-33	QCBLK166054-1	02/25/98	02/25/98	7	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK166054-1	02/25/98	02/25/98	79	%REC	*		1
Bromofluorobenzene	460-00-4	QCBLK166054-1	02/25/98	02/25/98	94	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK166054-1	02/25/98	02/25/98	114	%REC			1

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3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID: B0N6J4

Quanterra ID : 16998-001MSRE1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK166054-1	02/25/98	02/25/98	104	%REC			1
Trichloroethene	79-01-6	QCBLK166054-1	02/25/98	02/25/98	94	%REC			1
Benzene	71-43-2	QCBLK166054-1	02/25/98	02/25/98	108	%REC			1
Toluene	108-88-3	QCBLK166054-1	02/25/98	02/25/98	84	%REC			1
Chlorobenzene	108-90-7	QCBLK166054-1	02/25/98	02/25/98	106	%REC			1
Toluene-d8	2037-26-5	QCBLK166054-1	02/25/98	02/25/98	77	%REC	*		1
Bromofluorobenzene	460-00-4	QCBLK166054-1	02/25/98	02/25/98	92	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK166054-1	02/25/98	02/25/98	111	%REC			1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0N6J4

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02245

Matrix: (soil/water) WATER Lab Sample ID: 16998-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: BSMP1530

Level: (low/med) LOW Date Received: 02/19/98

% Moisture: not dec. _____ Date Analyzed: 02/24/98

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	5	JB
67-64-1	Acetone	18	JB
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	52	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	2	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.

B0N6J4

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02245

Matrix: (soil/water) WATER Lab Sample ID: 16998-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: BSMP1530

Level: (low/med) LOW Date Received: 02/19/98

% Moisture: not dec. _____ Date Analyzed: 02/24/98

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.	Unknown	3.666	12	J
2.	Unknown	19.803	18	J
3.				
4.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BON6J4 RE

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02245

Matrix: (soil/water) WATER Lab Sample ID: 16998-001 RE

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP1039

Level: (low/med) LOW Date Received: 02/19/98

% Moisture: not dec. _____ Date Analyzed: 02/25/98

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	5	JB
67-64-1	Acetone	19	JB
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	65	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	2	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.

BON6J4 RE

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02245

Matrix: (soil/water) WATER Lab Sample ID: 16998-001 RE

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP1039

Level: (low/med) LOW Date Received: 02/19/98

% Moisture: not dec. _____ Date Analyzed: 02/25/98

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.		Unknown	4.250	15	J
2.		Unknown	20.200	7	J
3.					
4.					
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11.					
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Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0N6J4	16998-001	Residual Chlori	7782-50-5a	QCBLK166636-1	03/05/98	03/05/98	1.91	MG/L		0.10	1
B0N6J4	16998-001DUP	Residual Chlori	7782-50-5a	QCBLK166636-1	03/05/98	03/05/98	1.92	MG/L		0.10	1
NA	QCBLK166636-1	Residual Chlori	7782-50-5a	QCBLK166636-1	03/05/98	03/05/98	0.10	MG/L	U	0.10	1
NA	QCLCS166636-1	Residual Chlori	7782-50-5a	QCBLK166636-1	03/05/98	03/05/98	102	%REC			1

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Project: 550.230

Category: Sulfate
Method: EPA 375.4
Matrix: LIQUID

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BON6J4	16998-001	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	21.0	MG/L		5.00	1
BON6J4	16998-001DUP	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	21.9	MG/L		5.00	1
BON6J4	16998-001MS	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	98	%REC			1
NA	QCBLK165712-1	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	5.00	MG/L	U	5.00	1
NA	QCLCS165712-1	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	95	%REC			1

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Project: 550.230

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

Sample Date : 02/19/98
Receipt Date : 02/19/98
Report Date : 03/13/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BDN6J4	16998-001	pH	PH	QCBLK166241-1	02/27/98	02/27/98	7.11	PH			1
BDN6J4	16998-001DUP	pH	PH	QCBLK166241-1	02/27/98	02/27/98	7.14	PH			1
NA	QCBLK166241-1	pH	PH	QCBLK166241-1	02/27/98	02/27/98	4.54	PH			1