W02227

Quanterra
Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

0049288

CASE NARRATIVE

JUN 1998 RECEIVED EDMC

MAR 1998 RECEIVED Data Log In

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

March 16, 1998

Attention: Joan Kessner

Project number	:	550.230
Date Received by Lab	:	February 5, 1998
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W02227
Data Deliverable	:	Summary

I. Introduction

On February 5,1998, 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
16893-001	B0N218	80209201	Water	05-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

pH by EPA Method 150.1, Sulfate by EPA Method 375.4, Total Dissolved Solids by EPA Method 160.1, Total Suspended Solids by EPA Method 160.2, Arsenic by EPA Method 7060, ICP Metals-TAL by EPA Method 6010, Total Residual Chlorine by EPA Method 330.3, Acrylamide by EPA Method 8316, Appendix IX Volatiles by EPA 8240, TCL Volatiles by EPA Method 8260.

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. A Sample Duplicate was analyzed as matrix QC for the pH, TSS, TDS and Total Residual Chlorine.

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
Quanterra, Richland reports Shipping Container 96-012 was received without COC tape on the cooler.

Volatiles 8240
Sample 16893-001MSD had high recovery (129%) for the surrogate 1,2-Dichloroethene-d4. The sample and the MS had acceptable recovery. The sample was not re-analyzed. See NCM# 3981

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

Metals
The recoveries of both the Silver matrix spike (79.6%) and the matrix spike duplicate (79.2%) were less than 80 %, therefore all associated data was flagged with a "N".

The percent difference for the Barium serial dilution(14.9) was greater than 10 which was indicated on the form ones by the "E" flag.

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

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

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

Robert E. White
Project Manager

LOG #: 3981

LABORATORY NONCONFORMANCE MEMO (NCM)

Quanterra Incorporated

WO 2227.

Project ID/Client: 550.230

NCM Initiated by/Date: Allman 2/25/98 Project Manager: REW

Sample Numbers/QC batch or lot numbers: 16893-001 MSD

Tests: VOA

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

Category IV: Analysis Reruns (Confirmation)

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

Category V: Analysis Reruns (Dilution)

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

Quality Assurance/Quality Control

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

Incorrect or Incomplete Client Deliverable

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

Reported Detection Limits Elevated Due to:

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

Miscellaneous

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

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

Client notified by (name and date): Bob White 3/16/98

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

Client's name and response: Joan Kessner

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

Project manager (signature and date): Robert E. White 3/16/98 noted in case narrative

000004A

QUANTERRA LABORATORY NONCONFORMANCE MEMO

LOG #: 3981

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

Problem Description/Root Cause Author's initials and date:

Sample 16893-001 & MS/MSD spike recoveries all within QC limits but the 16893-001 MSD had 4-BFB outside the QC limits.

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

Reported AS IS

Corrective Actions to Prevent Reoccurrence (Long Term) NONE

Corrective Action approved by (Supervisor/Group Leader) and date: Ellmann 2/25/98

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: M Winter Date: 2/25/98

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

☐ Verification not required or requested

☐ Verified / CA completed on: by

☐ Cannot verify (specify reason)

Verified by: Date:

Nonconformance Memo Closure:

QA signature: Date:

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

0000043

WO2227

Quanterra February 11, 1998 07:58 am
Account: 10722 Project: 550.230 Quanterra-Richland QAS No. 550.23 Rev. 1
Master Sample Login: 16893

Project Manager: W. Price

Draft: Final: correction Entered and Reviewed by: Sheila Lourier PM Review: Robert E. White

Sample Header Template:

Sample No. / Comments Data	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16893-001	B0N218	Water	05-FEB-98 07:56	05-FEB-98 10:00	25-FEB-98	AIRBORNE	1	Screening not Required
RICHLAND ID 80209201								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI Vial-40ml	HPLC/8316/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357607:99 357608:98 357609:97)
3		VOA/8240APPIX/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357601:92 357602:91 357603:90)
3		VOA/8260/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357604:89 357605:88 357606:87)
1	PN Plastic 1L	CL/330.3/Q4	S	COLD	19-FEB-98	07-FEB-98	TOE	(357600:93)
1	PN Plastic-500ml	AS/7060/Q4	S	HNO3	19-FEB-98	04-AUG-98	TOE	(357610:86)
1		ICAP/6010/Q4	S	HNO3	19-FEB-98	04-AUG-98	TOE	(357611:85)
1		TDS/160.1/Q4	S	COLD	19-FEB-98	12-FEB-98	TOE	(357598:95)
1		TSS/160.2/Q4	S	COLD	19-FEB-98	12-FEB-98	TOE	(357599:94)
1	PN Plastic-250ml	SO4/375.4/Q4	S	COLD	19-FEB-98	05-MAR-98	TOE	(357597:98)
1	PW Plastic-128oz	PH/150.1/Q4	S	COLD	19-FEB-98	06-FEB-98	TOE	(357596:99)

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16893-001DUP	B0N218	Water	05-FEB-98 07:56	05-FEB-98 10:00	25-FEB-98	AIRBORNE	1	Screening not Required
RICHLAND ID 80209201								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	PN Plastic-1L	CL/330.3/Q4	S	COLD	19-FEB-98	07-FEB-98	TOE	(357600:93)
1	PN Plastic-500ml	TDS/160.1/Q4	S	COLD	19-FEB-98	12-FEB-98	TOE	(357598:95)
1		TSS/160.2/Q4	S	COLD	19-FEB-98	12-FEB-98	TOE	(357599:94)
1	PN Plastic-250ml	SO4/375.4/Q4	S	COLD	19-FEB-98	05-MAR-98	TOE	(357597:98)
1	PW Plastic-128oz	PH/150.1/Q4	S	COLD	19-FEB-98	06-FEB-98	TOE	(357596:99)

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16893-001MS	B0N218	Water	05-FEB-98 07:56	05-FEB-98 10:00	25-FEB-98	AIRBORNE	1	Screening not Required
RICHLAND ID 80209201								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI Vial-40ml	HPLC/8316/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357607:99 357608:98 357609:97)
3		VOA/8240APPIX/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357601:92 357602:91 357603:90)
3		VOA/8260/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357604:89 357605:88 357606:87)
1	PN Plastic-500ml	AS/7060/Q4	S	HNO3	19-FEB-98	04-AUG-98	TOE	(357610:86)
1		ICAP/6010/Q4	S	HNO3	19-FEB-98	04-AUG-98	TOE	(357611:85)
1	PN Plastic-250ml	SO4/375.4/Q4	S	COLD	19-FEB-98	05-MAR-98	TOE	(357597:98)

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16893-001MSD	B0N218	Water	05-FEB-98 07:56	05-FEB-98 10:00	25-FEB-98	AIRBORNE	1	Screening not Required
RICHLAND ID 80209201								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI Vial-40ml	HPLC/8316/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357607:99 357608:98 357609:97)
3		VOA/8240APPIX/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357601:92 357602:91 357603:90)
3		VOA/8260/Q4	S	HCL	19-FEB-98	19-FEB-98	109C	(357604:89 357605:88 357606:87)
1	PN Plastic-500ml	AS/7060/Q4	S	HNO3	19-FEB-98	04-AUG-98	TOE	(357610:86)
1		ICAP/6010/Q4	S	HNO3	19-FEB-98	04-AUG-98	TOE	(357611:85)

3*=Sample has not been rad screened.

TOE Temp 4°C Cust# 14160
ST LOUIS

Chain of Custody Record

Quanterra

DOA 4124 6/97

Client: Bechtel	Project Manager: A. Koprowa	Date: 2-6-98	Chain of Custody Number: 00428
Address:	Telephone Number (Area Code)/Fax Number:	Lab Number:	Page 1 of 1
City: / State: / Zip Code:	Site Contact:	Lab Contact:	
Project Name: SAF B48-009	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

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	HNOS	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): SEE COC	Special Instructions/ Conditions of Receipt
SDRL-9201 BON218	all	below												

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 3-22-98

QC Requirements (Specify): SDG WD2227

1. Relinquished By: Hedelberg QES	Date: 2-6-98	Time: 16:00	1. Received By: [signature]	Date: 2-7-98	Time: 10:00
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: All samples Rec'd 2-9-98 0820

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-009-09	Page 1 of 2

Collector Robert Fahlberg	**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.	**Field Logbook No.** EL-1309-1		**Method of Shipment** Gov Vehicle	
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 4C

SAMPLE ANALYSIS

SDG W02227

80209201

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	HNO3 to pH <2	HNO3 to pH <2	None	Cool 4C	HCl or H2SO4 to pH <2 Coo
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)

Sample No.	Matrix *	Sample Date	Sample Time										
B0N218	Water	2-5-98	0756	X	X	X	X	X	X	X	X	X	X
					100	100	100	100	100	100	100	3X100	3X100
					All	Samples		Received		2-9-98		0820	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	2-5-98 1000	Heidelberg	2/5/98 1000
Relinquished By	Date/Time	Received By	Date/Time
		2100	
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	B98-009-09	Page 2 of 2

Collector Robert Fahlberg	**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.	**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

Special Handling and/or Storage Cool to 4C

Preservation	HCl or H2SO4 to pH < 2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80209201	VOA - 8260A (FCL)										

Sample No.	Matrix *	Sample Date	Sample Time										
B0N218	Water	2.5.98	0756	X									
				3x100									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	2.5.98 1000	Heidelberg 1000	2-5-98
Relinquished By	Date/Time	Received By	Date/Time
		2100	
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

FROM THE DESK OF: ALLEN NELLESEN
ERC TEAM RAD-CON SUPPORT
373-1925/X0-23

TO: R.T.Fahlberg N1-28 **DATE:** August 15, 1996

SUBJECT: **WATER SAMPLES FROM 183N POTABLE WATER PLANT**

Water samples are routinely collected and sent off-site for analysis to assure compliance with Washington State Department of Health drinking water requirements. The history of 183-N which provides treated water to support the operation of the N-Reactor shows that a radiological survey of the water samples is not warranted.

If you need further help or have any questions, please call me at the phone number displayed above.

cc: D. D. Blankenship X7-75
T. A. Edwards X0-23
J. E. Parsons X0-23
R. K. Stafford X1-86
J. P. Zoric X5-57

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 2/5 0955 SG#: W02227

Work Order Number: 802092 SAF #: B98-009

Shipping Container ID: 96-012 Chain of Custody # B98-009-09

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 3°
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): NO COC tape on cooler.

Sample Custodian/Laboratory: [signature] Date: 2/5/98

Telephoned To: ____ On ____ By ____

000010

Client Sample Screening Results

05-Feb-98

(P-) 2/5/98

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BHI B0N218		2/5/1998 11:00:00 AM	QUAD21A	2/5/1998 1:11:28 PM	B0N218	30	16	0.42476190	86	1.8309524
	LIQUID		Bkg:	2/5/1998 1:18:52 AM	BKG	700	76	0.10857143	725	1.0357143

Anl Date:	2/5/1998	Tot Sa, Alq:	1.00E+00	,	1.00E+01	Alp;	(Dpm/	1.20E+00	(uCi/	5.41E-05	(pCi/	5.41E+01	± 2.5E+01	CAT	4.6E-01	Lab	
Ppt mg:	1 1	Units:	L	,	ml	Bet;	Alq):	3.44E+00	Sa):	1.55E-04	L/g):	1.55E+02	± 2.8E+01	I	3.2E-01	Alq L/g	

000011

Quanterra Environmental Services

BWSL

014160

Login No.: 16893

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland

Date: 2-9-98 Time: 10:00

Project No: 550.230

Initiated by: [illegible]

Shipper/No: AB 599 9773 810

RFA/COC Numbers: 928

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: COC Rec 2-7-98, Samples Rec 2-9-98

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) [illegible] Date: 2-9-98

Project Management Review: Robert E. White Date: 2-10-98

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: Acrylamide
Method: SW-846 8316
Matrix: LIQUID

Client ID: BON218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Acrylamide	79-06-1	QCBLK164781-1	03/09/98	03/09/98	100	UG/L	U	100	1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Client ID: BON218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Acrylamide	79-06-1	QCBLK164781-1	03/09/98	03/09/98	94	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Client ID: BON218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Acrylamide	79-06-1	QCBLK164781-1	03/09/98	03/09/98	101	%REC			1

1D
ACRYLAMIDE ANALYSIS DATA SHEET

EPA SAMPLE NO.
BON218

Lab Name: QUANTERRA MO Contract: 550.23

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: W02227

Matrix : (soil/water) WATER Lab Sample ID: 16893-001

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

Level: (low/med) LOW Date Sampled: 02-05-98

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

Extraction:(SepF/Cont/Sonc/Shak)_____ Date Analyzed: 03-09-98

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

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID: BON218

Quanterra ID : 16893-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK165436-1	02/19/98	02/19/98	383	UG/L		200	1
Antimony	7440-36-0	QCBLK165436-1	02/19/98	02/19/98	42.5	UG/L	U	60.0	1
Barium	7440-39-3	QCBLK165436-1	02/19/98	02/19/98	24.2	UG/L	BE	200	1
Beryllium	7440-41-7	QCBLK165436-1	02/19/98	02/19/98	0.65	UG/L	B	5.0	1
Cadmium	7440-43-9	QCBLK165436-1	02/19/98	02/19/98	3.3	UG/L	U	5.0	1
Calcium	7440-70-2	QCBLK165436-1	02/19/98	02/19/98	23800	UG/L		5000	1
Chromium	7440-47-3	QCBLK165436-1	02/19/98	02/19/98	2.7	UG/L	U	10.0	1
Cobalt	7440-48-4	QCBLK165436-1	02/19/98	02/19/98	4.3	UG/L	U	50.0	1
Copper	7440-50-8	QCBLK165436-1	02/19/98	02/19/98	6.1	UG/L	B	25.0	1
Iron	7439-89-6	QCBLK165436-1	02/19/98	02/19/98	191	UG/L		100	1
Magnesium	7439-95-4	QCBLK165436-1	02/19/98	02/19/98	4280	UG/L	B	5000	1
Manganese	7439-96-5	QCBLK165436-1	02/19/98	02/19/98	7.4	UG/L	B	15.0	1
Nickel	7440-02-0	QCBLK165436-1	02/19/98	02/19/98	14.6	UG/L	U	40.0	1
Potassium	7440-09-7	QCBLK165436-1	02/19/98	02/19/98	2180	UG/L	U	5000	1
Silver	7440-22-4	QCBLK165436-1	02/19/98	02/19/98	6.0	UG/L	UN	10.0	1
Sodium	7440-23-5	QCBLK165436-1	02/19/98	02/19/98	4110	UG/L	B	5000	1
Vanadium	7440-62-2	QCBLK165436-1	02/19/98	02/19/98	2.9	UG/L	U	50.0	1
Zinc	7440-66-6	QCBLK165436-1	02/19/98	02/19/98	16.5	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

Client ID: BON218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK165436-1	02/19/98	02/19/98	94	%REC			1
Antimony	7440-36-0	QCBLK165436-1	02/19/98	02/19/98	97	%REC			1
Barium	7440-39-3	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Beryllium	7440-41-7	QCBLK165436-1	02/19/98	02/19/98	98	%REC			1
Cadmium	7440-43-9	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Calcium	7440-70-2	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Chromium	7440-47-3	QCBLK165436-1	02/19/98	02/19/98	89	%REC			1
Cobalt	7440-48-4	QCBLK165436-1	02/19/98	02/19/98	91	%REC			1
Copper	7440-50-8	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Iron	7439-89-6	QCBLK165436-1	02/19/98	02/19/98	89	%REC			1
Magnesium	7439-95-4	QCBLK165436-1	02/19/98	02/19/98	97	%REC			1
Manganese	7439-96-5	QCBLK165436-1	02/19/98	02/19/98	91	%REC			1
Nickel	7440-02-0	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Potassium	7440-09-7	QCBLK165436-1	02/19/98	02/19/98	99	%REC			1
Silver	7440-22-4	QCBLK165436-1	02/19/98	02/19/98	80	%REC	N		1
Sodium	7440-23-5	QCBLK165436-1	02/19/98	02/19/98	93	%REC			1
Vanadium	7440-62-2	QCBLK165436-1	02/19/98	02/19/98	94	%REC			1
Zinc	7440-66-6	QCBLK165436-1	02/19/98	02/19/98	93	%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

Client ID: B0N218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK165436-1	02/19/98	02/19/98	95	%REC			1
Antimony	7440-36-0	QCBLK165436-1	02/19/98	02/19/98	99	%REC			1
Barium	7440-39-3	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Beryllium	7440-41-7	QCBLK165436-1	02/19/98	02/19/98	99	%REC			1
Cadmium	7440-43-9	QCBLK165436-1	02/19/98	02/19/98	93	%REC			1
Calcium	7440-70-2	QCBLK165436-1	02/19/98	02/19/98	93	%REC			1
Chromium	7440-47-3	QCBLK165436-1	02/19/98	02/19/98	89	%REC			1
Cobalt	7440-48-4	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Copper	7440-50-8	QCBLK165436-1	02/19/98	02/19/98	94	%REC			1
Iron	7439-89-6	QCBLK165436-1	02/19/98	02/19/98	86	%REC			1
Magnesium	7439-95-4	QCBLK165436-1	02/19/98	02/19/98	98	%REC			1
Manganese	7439-96-5	QCBLK165436-1	02/19/98	02/19/98	92	%REC			1
Nickel	7440-02-0	QCBLK165436-1	02/19/98	02/19/98	94	%REC			1
Potassium	7440-09-7	QCBLK165436-1	02/19/98	02/19/98	95	%REC			1
Silver	7440-22-4	QCBLK165436-1	02/19/98	02/19/98	79	%REC	N		1
Sodium	7440-23-5	QCBLK165436-1	02/19/98	02/19/98	94	%REC			1
Vanadium	7440-62-2	QCBLK165436-1	02/19/98	02/19/98	95	%REC			1
Zinc	7440-66-6	QCBLK165436-1	02/19/98	02/19/98	94	%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 : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BON218	16893-001	Arsenic	7440-38-2	QCBLK165441-1	02/19/98	02/19/98	1.8	UG/L	U	10.0	1
BON218	16893-001MS	Arsenic	7440-38-2	QCBLK165441-1	02/19/98	02/19/98	101	%REC			1
BON218	16893-001MSD	Arsenic	7440-38-2	QCBLK165441-1	02/19/98	02/19/98	101	%REC			1
NA	QCLCS165441-1	Arsenic	7440-38-2	QCBLK165441-1	02/19/98	02/19/98	98	%REC			1
NA	QCBLK165441-1	Arsenic	7440-38-2	QCBLK165441-1	02/19/98	02/19/98	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.: W02227_____

SOW No.: SW846

EPA Sample No.	Lab Sample ID
B0N218	16893-001
B0N218SD	16893-001SD
B0N218S	16893-001S

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.

B0N218

Lab Name: QUANTERRA_MO Contract: 550.230
Lab Code: ITMO Case No.: SAS No.: SDG No.: W02227
Matrix (soil/water): WATER Lab Sample ID: 16893-001
Level (low/med): LOW Date Received: 02/05/98
% 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	383			P
7440-36-0	Antimony	42.5	U		P
7440-38-2	Arsenic	1.8	U		F
7440-39-3	Barium	24.2	B	E	P
7440-41-7	Beryllium	0.65	B		P
7440-43-9	Cadmium	3.3	U		P
7440-70-2	Calcium	23800			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	4.3	U		P
7440-50-8	Copper	6.1	B		P
7439-89-6	Iron	191			P
7439-95-4	Magnesium	4280	B		P
7439-96-5	Manganese	7.4	B		P
7440-02-0	Nickel	14.6	U		P
7440-09-7	Potassium	2180	U		P
7440-22-4	Silver	6.0	U	N	P
7440-23-5	Sodium	4110	B		P
7440-62-2	Vanadium	2.9	U		P
7440-66-6	Zinc	16.5	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: Volatiles 8240-Appendix IX
Method: EPA 8240
Matrix: LIQUID

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID: BON218

Quanterra ID : 16893-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK164813-1	02/11/98	02/11/98	1	UG/L	J	5	1
Acetone	67-64-1	QCBLK164813-1	02/11/98	02/11/98	9	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK164813-1	02/11/98	02/11/98	1	UG/L	J	5	1
Chloroform	67-66-3	QCBLK164813-1	02/11/98	02/11/98	42	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK164813-1	02/11/98	02/11/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Vinyl Acetate	108-05-4	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Bromodichloromethane	75-27-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK164813-1	02/11/98	02/11/98	3	UG/L	J	5	1
Dibromochloromethane	124-48-1	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK164813-1	02/11/98	02/11/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK164813-1	02/11/98	02/11/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Acrolein	107-02-8	QCBLK164813-1	02/11/98	02/11/98	100	UG/L	U	100	1
Acetonitrile	75-05-8	QCBLK164813-1	02/11/98	02/11/98	100	UG/L	U	100	1
Iodomethane	74-88-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Allyl chloride	107-05-1	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
2-Chloro-1,3-butadiene	126-99-8	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Propionitrile	107-12-0	QCBLK164813-1	02/11/98	02/11/98	100	UG/L	U	100	1
Methacrylonitrile	126-98-7	QCBLK164813-1	02/11/98	02/11/98	100	UG/L	U	100	1
1,4-Dioxane	123-91-1	QCBLK164813-1	02/11/98	02/11/98	500	UG/L	U	500	1
Methyl methacrylate	80-62-6	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Dibromomethane	74-95-3	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
Ethyl methacrylate	97-63-2	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,2-Dibromoethane	106-93-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,1,1,2-Tetrachloroethane	630-20-6	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
trans,1,4-Dichloro-2-butene	110-57-6	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,2,3-Trichloropropane	96-18-4	QCBLK164813-1	02/11/98	02/11/98	5	UG/L	U	5	1
1,2-Dibromo-3-chloropropane	96-12-8	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Dichlorodifluoromethane	75-71-8	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Trichlorofluoromethane	75-69-4	QCBLK164813-1	02/11/98	02/11/98	10	UG/L	U	10	1
Unknown-1	TIC-32	QCBLK164813-1	02/11/98	02/11/98	9	UG/L	J		1
Dodecane	112-40-3	QCBLK164813-1	02/11/98	02/11/98	6	UG/L	JN		1
Heptadecane, 2-methyl-	1560-89-0	QCBLK164813-1	02/11/98	02/11/98	23	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK164813-1	02/11/98	02/11/98	94	%REC			1
Bromofluorobenzene	460-00-4	QCBLK164813-1	02/11/98	02/11/98	90	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK164813-1	02/11/98	02/11/98	98	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Volatiles 8240-Appendix IX
Method: EPA 8240
Matrix: LIQUID

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID: BON218

Quanterra ID : 16893-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK164813-1	02/11/98	02/11/98	109	%REC			1
Trichloroethene	79-01-6	QCBLK164813-1	02/11/98	02/11/98	97	%REC			1
Benzene	71-43-2	QCBLK164813-1	02/11/98	02/11/98	101	%REC			1
Toluene	108-88-3	QCBLK164813-1	02/11/98	02/11/98	95	%REC			1
Chlorobenzene	108-90-7	QCBLK164813-1	02/11/98	02/11/98	100	%REC			1
Toluene-d8	2037-26-5	QCBLK164813-1	02/11/98	02/11/98	96	%REC			1
Bromofluorobenzene	460-00-4	QCBLK164813-1	02/11/98	02/11/98	94	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK164813-1	02/11/98	02/11/98	98	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Volatiles 8240-Appendix IX
Method: EPA 8240
Matrix: LIQUID

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID: BON218

Quanterra ID : 16893-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK164813-1	02/11/98	02/11/98	136	%REC			1
Trichloroethene	79-01-6	QCBLK164813-1	02/11/98	02/11/98	110	%REC			1
Benzene	71-43-2	QCBLK164813-1	02/11/98	02/11/98	123	%REC			1
Toluene	108-88-3	QCBLK164813-1	02/11/98	02/11/98	114	%REC			1
Chlorobenzene	108-90-7	QCBLK164813-1	02/11/98	02/11/98	120	%REC			1
Toluene-d8	2037-26-5	QCBLK164813-1	02/11/98	02/11/98	113	%REC			1
Bromofluorobenzene	460-00-4	QCBLK164813-1	02/11/98	02/11/98	112	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK164813-1	02/11/98	02/11/98	116	%REC			1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BON218

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02227

Matrix: (soil/water) WATER Lab Sample ID: 16893-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0860

Level: (low/med) LOW Date Received: 02/05/98

% Moisture: not dec. _____ Date Analyzed: 02/11/98

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	1	J
67-64-1	Acetone	9	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)	1	J
67-66-3	Chloroform	42	
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	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	3	J
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.

BON218

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02227

Matrix: (soil/water) WATER Lab Sample ID: 16893-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0860

Level: (low/med) LOW Date Received: 02/05/98

% Moisture: not dec. _____ Date Analyzed: 02/11/98

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.

BON218

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02227

Matrix: (soil/water) WATER Lab Sample ID: 16893-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0860

Level: (low/med) LOW Date Received: 02/05/98

% Moisture: not dec. _____ Date Analyzed: 02/11/98

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

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.065	9	J
2. 112-40-3	Dodecane	23.820	6	NJ
3. 1560-89-0	Heptadecane, 2-methyl-	24.640	23	NJ
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Client ID: BON218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK165085-1	02/14/98	02/14/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK165085-1	02/14/98	02/14/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK165085-1	02/14/98	02/14/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK165085-1	02/14/98	02/14/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK165085-1	02/14/98	02/14/98	3	UG/L	BJ	5	1
Acetone	67-64-1	QCBLK165085-1	02/14/98	02/14/98	12	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK165085-1	02/14/98	02/14/98	45	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK165085-1	02/14/98	02/14/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK165085-1	02/14/98	02/14/98	2	UG/L	J	5	1
1,2-Dichloropropane	78-87-5	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK165085-1	02/14/98	02/14/98	1	UG/L	J	5	1
Dibromochloromethane	124-48-1	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK165085-1	02/14/98	02/14/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK165085-1	02/14/98	02/14/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK165085-1	02/14/98	02/14/98	5	UG/L	U	5	1
Toluene-d8	2037-26-5	QCBLK165085-1	02/14/98	02/14/98	102	%REC			1
Bromofluorobenzene	460-00-4	QCBLK165085-1	02/14/98	02/14/98	99	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK165085-1	02/14/98	02/14/98	116	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID: BON218

Quanterra ID : 16893-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK165085-1	02/14/98	02/14/98	125	%REC			1
Trichloroethene	79-01-6	QCBLK165085-1	02/14/98	02/14/98	103	%REC			1
Benzene	71-43-2	QCBLK165085-1	02/14/98	02/14/98	107	%REC			1
Toluene	108-88-3	QCBLK165085-1	02/14/98	02/14/98	100	%REC			1
Chlorobenzene	108-90-7	QCBLK165085-1	02/14/98	02/14/98	98	%REC			1
Toluene-d8	2037-26-5	QCBLK165085-1	02/14/98	02/14/98	106	%REC			1
Bromofluorobenzene	460-00-4	QCBLK165085-1	02/14/98	02/14/98	100	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK165085-1	02/14/98	02/14/98	117	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Client ID: 80N218

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Quanterra ID : 16893-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK165029-1	02/16/98	02/16/98	117	%REC			1
Trichloroethene	79-01-6	QCBLK165029-1	02/16/98	02/16/98	92	%REC			1
Benzene	71-43-2	QCBLK165029-1	02/16/98	02/16/98	102	%REC			1
Toluene	108-88-3	QCBLK165029-1	02/16/98	02/16/98	98	%REC			1
Chlorobenzene	108-90-7	QCBLK165029-1	02/16/98	02/16/98	97	%REC			1
Toluene-d8	2037-26-5	QCBLK165029-1	02/16/98	02/16/98	96	%REC			1
Bromofluorobenzene	460-00-4	QCBLK165029-1	02/16/98	02/16/98	98	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK165029-1	02/16/98	02/16/98	101	%REC			1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BON218

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02227

Matrix: (soil/water) WATER Lab Sample ID: 16893-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: BSMP1412

Level: (low/med) LOW Date Received: 02/05/98

% Moisture: not dec. _____ Date Analyzed: 02/14/98

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	3	JB
67-64-1	Acetone	12	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	45	
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	1	J
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.

BON218

Lab Name: QUANTERRA MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02227

Matrix: (soil/water) WATER Lab Sample ID: 16893-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: BSMP1412

Level: (low/med) LOW Date Received: 02/05/98

% Moisture: not dec. _____ Date Analyzed: 02/14/98

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Sulfate
Method: EPA 375.4
Matrix: LIQUID

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BON218	16893-001	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	24.7	MG/L		5.00	1
BON218	16893-001DUP	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	24.8	MG/L		5.00	1
BON218	16893-001MS	Sulfate	14808-79-8	QCBLK165712-1	02/24/98	02/24/98	96	%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

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BON218	16893-001	Residual Chlori	7782-50-5a	QCBLK165516-1	02/19/98	02/19/98	0.22	MG/L		0.10	1
BON218	16893-001DUP	Residual Chlori	7782-50-5a	QCBLK165516-1	02/19/98	02/19/98	0.19	MG/L		0.10	1
NA	QCBLK165516-1	Residual Chlori	7782-50-5a	QCBLK165516-1	02/19/98	02/19/98	0.11	MG/L		0.10	1
NA	QCLCS165516-1	Residual Chlori	7782-50-5a	QCBLK165516-1	02/19/98	02/19/98	102	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BON218	16893-001	pH	PH	QCBLK165517-1	02/19/98	02/19/98	6.95	PH			1
BON218	16893-001DUP	pH	PH	QCBLK165517-1	02/19/98	02/19/98	7.03	PH			1
NA	QCBLK165517-1	pH	PH	QCBLK165517-1	02/19/98	02/19/98	4.60	PH			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BON218	16893-001	Total Suspended	TSS	QCBLK164955-1	02/12/98	02/12/98	1.00	MG/L	U	1.00	1
BON218	16893-001DUP	Total Suspended	TSS	QCBLK164955-1	02/12/98	02/12/98	1.00	MG/L	U	1.00	1
NA	QCBLK164955-1	Total Suspended	TSS	QCBLK164955-1	02/12/98	02/12/98	1.00	MG/L	U	1.00	1
NA	QCLCS164955-1	Total Suspended	TSS	QCBLK164955-1	02/12/98	02/12/98	98	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: TDS-160.1
Method: EPA 160.1
Matrix: LIQUID

Sample Date : 02/05/98
Receipt Date : 02/05/98
Report Date : 03/12/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0N218	16893-001	Total Dissolved	TDS	QCBLK164957-1	02/12/98	02/12/98	65.0	MG/L		5.00	1
B0N218	16893-001DUP	Total Dissolved	TDS	QCBLK164957-1	02/12/98	02/12/98	53.0	MG/L		5.00	1
NA	QCBLK164957-1	Total Dissolved	TDS	QCBLK164957-1	02/12/98	02/12/98	5.00	MG/L	U	5.00	1
NA	QCLCS164957-1	Total Dissolved	TDS	QCBLK164957-1	02/12/98	02/12/98	85	%REC			1