W01866

0048871

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

October 18, 1997

Attention: Joan Kessner

Project number	:	550.230
Date Received by Lab	:	August 21, 1997
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W01866
Data Deliverable	:	Summary

OCT 1997 RECEIVED Date Logged
APR 1998 RECEIVED EDMC

I. Introduction

On August 21, 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
15672-001	B0L3Y4	70836201	Water	08/21/97

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
Sample 15672-001 was analyzed out side of the analysis hold time. See NCM #3707.

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

Wet Chemistry
There are no comment 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\hanw1866.nar

8707 10/15A

Log #: ~~3706~~

LABORATORY NONCONFORMANCE MEMO (NCM)

W01866

Quanterra Incorporated

Project ID/Client: 550.230

NCM Initiated by/Date: DES 10-14-97 Project Manager: W. Price

Sample Numbers/QC batch or lot numbers: 15672-001

Tests: 8316 Acrylamide

Analytical Area (check appropriate area):

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

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 ' : 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) Capacity to set up for analysis

Category III: Analysis Reruns (QA/QC)

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

Category IV: Analysis Reruns (Confirmation)

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

Category V: Analysis Reruns (Dilution)

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

Quality Assurance/Quality Control

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

Incorrect or Incomplete Client Deliverable

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

Reported Detection Limits Elevated Due to:

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

Miscellaneous

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

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

Client notified by (name and date): WP

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

Client's name and response:

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

Project manager (signature and date): W. Price 10/18/97

000004A

QUANTERRA LABORATORY NONCONFORMANCE MEMO

LOG # 3707 3706 NCMO 10/15/97

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

Problem Description/Root Cause Author's initials and date: DES 10-14-97

The analysis hold time was exceeded due to over capacity of lab

Corrective Actions (Short Term) Author's initials and date: DES 10-14-97

Report sample as is

Corrective Actions to Prevent Reoccurrence (Long Term)

Check with P.M. on what is correct analysis hold time, and to schedule sample analysis for 8316 appropriately.

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

Additional Comments: _____

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

Date Corrective Action is to be completed: _____

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

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

☐ Further action required: _____

Further action assigned to: _____

QA signature: _____ Date: _____

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

Quanterra August 28, 1997 09:59 am
Account: 10722 Project: 550.230 Quanterra-Richland QAS No. 550.23 Rev. 0
Master Sample Login: 15672

Project Manager: W. Price

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

Sample Header Template:

Sample No. / #	Client ID / Container Type	C-Matrix / Analysis	Date: Collected / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category / (Container Numbers:% Filled)	Rad Sample No. / Comments / Data:
15672-001	BOL3Y4	Water	21-AUG-97 07:45	21-AUG-97 11:34	19-SEP-97	AIR BORNE	1	Screening not Required	
RICHLAND ID 70836201									
3	VI - Vial-40ml	HPLC/8316/04	S	HCL	12-SEP-97	28-AUG-97	109G	(327529:97 327530:96 327531:95)	
3		VOA/8260/04	S	HCL	12-SEP-97	04-SEP-97	109G	(327529:97 327530:96 327531:95)	
3		VOA/APPIX/04	S	HCL	12-SEP-97	04-SEP-97	109G	(327526:100 327527:99 327528:98)	
3	AN - Amber Glass-1L	HOLD//04	S	COLD	12-SEP-97	31-AUG-97	TB3	(327616:99 327617:98 327618:97)	
1	PN - Plastic-1L	CL/330.3/04	S	COLD	12-SEP-97	23-AUG-97	T3B	(327525:100)	
1	PN - Plastic-500ml	AS/7060/04	S	HNO3	12-SEP-97	17-FEB-98	T3B	(327523:100)	
1		ICAP/6010/04	S	HNO3	12-SEP-97	17-FEB-98	T3B	(327524:99)	
1		TDS/160.1/04	S	COLD	12-SEP-97	28-AUG-97	T3B	(327554:100)	
1		TSS/160.2/04	S	COLD	12-SEP-97	28-AUG-97	T3B	(327522:100)	
1	PN - Plastic-250ml	SO4/375.4/04	S	COLD	12-SEP-97	18-SEP-97	T3B	(327535:95)	
1	PN - Plastic-120ml	PH/150.1/04	S	COLD	12-SEP-97	22-AUG-97	T3B	(327521:100)	
15672-001DUP	BOL3Y4	Water	21-AUG-97 07:45	21-AUG-97 11:34	19-SEP-97	AIR BORNE	1	Screening not Required	
RICHLAND ID 70836201									
1	PN - Plastic-1L	CL/330.3/04	S	COLD	12-SEP-97	23-AUG-97	T3B	(327525:100)	
1	PN - Plastic-500ml	TDS/160.1/04	S	COLD	12-SEP-97	28-AUG-97	T3B	(327554:100)	
1		TSS/160.2/04	S	COLD	12-SEP-97	28-AUG-97	T3B	(327522:100)	
1	PN - Plastic-250ml	SO4/375.4/04	S	COLD	12-SEP-97	18-SEP-97	T3B	(327535:95)	
1	PN - Plastic-120ml	PH/150.1/04	S	COLD	12-SEP-97	22-AUG-97	T3B	(327521:100)	
15672-001MS	BOL3Y4	Water	21-AUG-97 07:45	21-AUG-97 11:34	19-SEP-97	AIR BORNE	1	Screening not Required	
RICHLAND ID 70836201									
3	VI - Vial-40ml	HPLC/8316/04	S	HCL	12-SEP-97	28-AUG-97	109G	(327529:97 327530:96 327531:95)	
3		VOA/8260/04	S	HCL	12-SEP-97	04-SEP-97	109G	(327529:97 327530:96 327531:95)	
3		VOA/APPIX/04	S	HCL	12-SEP-97	04-SEP-97	109G	(327526:100 327527:99 327528:98)	
1	PN - Plastic-1L	CL/330.3/04	S	COLD	12-SEP-97	23-AUG-97	T3B	(327525:100)	
1	PN - Plastic-500ml	AS/7060/04	S	HNO3	12-SEP-97	17-FEB-98	T3B	(327523:100)	
1		ICAP/6010/04	S	HNO3	12-SEP-97	17-FEB-98	T3B	(327524:99)	
1	PN - Plastic-250ml	SO4/375.4/04	S	COLD	12-SEP-97	18-SEP-97	T3B	(327535:95)	
15672-001MSD	BOL3Y4	Water	21-AUG-97 07:45	21-AUG-97 11:34	19-SEP-97	AIR BORNE	1	Screening not Required	
RICHLAND ID 70836201									
3	VI - Vial-40ml	HPLC/8316/04	S	HCL	12-SEP-97	28-AUG-97	109G	(327529:97 327530:96 327531:95)	
3		VOA/8260/04	S	HCL	12-SEP-97	04-SEP-97	109G	(327529:97 327530:96 327531:95)	
3		VOA/APPIX/04	S	HCL	12-SEP-97	04-SEP-97	109G	(327526:100 327527:99 327528:98)	
1	PN - Plastic-500ml	AS/7060/04	S	HNO3	12-SEP-97	17-FEB-98	T3B	(327523:100)	
1		ICAP/6010/04	S	HNO3	12-SEP-97	17-FEB-98	T3B	(327524:99)	

*=Sample has not been rad screened.

Chain of Custody Record

ST LOUIS

Quanterra Environmental Services

QUA-4124-1

Client: Bechtel	Project Manager: Jodie Carnes	Date: 8-22-97	Chain Of Custody Number: 64789
Address	Telephone Number (Area Code) Fax Number	Lab Number	Page 1 of 1
City / State / Zip Code	Site Contact	Lab Contact	
Project Name: SAF B97-108	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	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): SEE COC	Special Instructions/ Conditions of Receipt
10836201 BOL394	all	matrices												

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 10-5-97

QC Requirements (Specify): SDG W01866

1. Relinquished By: Heidelberg Quanterra	Date: 8-22-97	Time: 16:00	1. Received By: 2nd morning	Date: 8-23-97	Time: 0952
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B97-108-07	Page 1 of 2

Collector: Mike Stankovich / Renee Nielson	Company Contact: Joe Zoric — Telephone No.: 373-4315	Project Coordinator: Koerner, CC	Date Turnaround: 45 Days
Project Designation: 183N Backwash Discharge Pond – Permit Monitoring	Sampling Location: 100N	SAF No.: B97-108	
Ice Chest No.: ERC96028	Field Logbook No.: EL-1309	Method of Shipment: Hand delivered	
Shipped To: Quantern Incorporated	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA pH-1 1	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage: Cool 4C

SAMPLE ANALYSIS: 70836201 SDG W01866

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	HNO3 to pH <2	HNO3 to pH <2	None	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C
Type of Container	P	P	P	P	P	P	P	P	Gs*	Gs*
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 (Total dissolved solids)	TSS - 160.2	Arsenic - 7060 - (GFAA)	ICP Metals - 6010A (TAL)	Chlorine (Total residual) - 330.5 (Chlorine)	VOA - 8240A (Approx DL)	VOA - 8260A (TCL)

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) - 330.5	VOA - 8240A (Approx DL)	VOA - 8260A (TCL)
B0L3Y4	Water	8/21/97	0745	X	X	X	X	X	X	X	X	X	X
					1	1	1	1	1	1	1	1	1
					100	100	100	100	100	100	100	3X100	3X100
												8-22	8-22

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson	8-21-97 1134	Lucas Kittelsen	8-21-97 1139

SPECIAL INSTRUCTIONS
**EPA330.3 - The ERC Contractor acknowledges the specified holding time is not likely achievable.
100CPM

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	B97-108-07	Page 2 of 2

Collector: Mike Stankovich / Renee Nielson	Company Contact: Joe Zoric	Telephone No.: 373-4315	Project Coordinator: Koerner, CC
Project Designation: 183N Backwash Discharge Pond – Permit Monitoring	Sampling Location: 100N		SAF No.: B97-108
Ice Chest No.: ERC96028	Field Logbook No.: EL-1309		Method of Shipment: Hand delivered
Shipped To: Quanterra Incorporated	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Data Turnaround: **45 Days**

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage: Cool 4C

SAMPLE ANALYSIS: 70836201

Preservation	Cool 4C												
Type of Container	aG												
No. of Container(s)	3												
Volume	1000ml												
	Acrylamide - 8316												
Sample No.	Matrix *	Sample Date	Sample Time										
B0L3Y4	Water	8/21/97	0745	X									
				3x10									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Renee Nielson	Date/Time: 8/21/97 1134	Received By: Lawrence Hurley	Date/Time: 8-21-97 1134
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
**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 8-21-97 1130 Client Name BHI

Project/Client # B97-133 - B97-108 Batch or Case # _____

Cooler ID (if noted on outside of cooler) ERC 96-028

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes [X] No [ ]
3. Custody Seals dated and signed? Yes [X] No [ ]
4. Chain of Custody record is taped on inside of cooler lid? Yes [ ] No [X]
5. Vermiculite/packing material is: Wet [ ] Dry [X] _____
6. Each sample is in a plastic bag? Yes [X] No [ ] _____
7. Number of sample containers in cooler: 23
8. Samples have: X tape ___ hazard labels; X custody seals ___ appropriate sample labels
9. Samples are: X in good condition ___ leaking; ___ broken ___ have air bubbles; ___ other
10. Coolant Present? Yes [X] No [ ] Sample Temperature 4°C
11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #(s) N/A B97-108-07, B97-133-02
    Request for Analysis #(s) _____
    Airbill # _____ Carrier GOV. Veh
12. Have any anomalies been identified above? Yes [ ] No [X]
13. Memos have been initiated for all anomalies identified above: Yes [ ]

Printed Name/Signature Karen Hetherly Date/Time 8-21-97

Client Sample Screening Results

22-Aug-97

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BHI B0L3Y4		8/21/1997 3:00:00 PM	QUAD21A	8/22/1997 9:23:19 AM	B0L3Y4	30	14	0.42150538	79	1.6881720
	LIQUID		Bkg:	8/22/1997 12:15:40 AM	BKG	620	28	0.04516129	586	0.9451613
Anl Date: 8/22/1997	Tot Sa, Alq: 1.00E+00	, 1.00E+01	Alp; (Dpm/ 1.22E+00	(uCi/ 5.50E-05	(pCi/ 5.50E+01	± 2.5E+01	CAT I	4.5E-01	Lab Alq Lig	
Ppt mg: 2.3	Units: L	, ml	Bet; Alq): 3.16E+00	Sa): 1.43E-04	Lig): 1.43E+02	± 2.6E+01		3.5E-01		
BHI B0L653		8/21/1997 3:00:00 PM	QUAD21B	8/22/1997 9:23:19 AM	B0L653	30	87	2.86451613	268	8.0349462
	SOLID		Bkg:	8/22/1997 12:15:40 AM	BKG	620	22	0.03548387	557	0.8983871
Anl Date: 8/22/1997	Tot Sa, Alq: 1.50E+03	, 6.18E+01	Alp; (Dpm/ 1.57E+01	(uCi/ 1.71E-01	(pCi/ 1.14E+02	± 1.3E+01	CAT III	4.4E-01	Lab Alq Lig	
Ppt mg: 61.8	Units: g	, mg	Bet; Alq): 1.56E+01	Sa): 1.71E-01	Lig): 1.14E+02	± 8.1E+00		8.8E-01		
BHI B0LJW0		8/21/1997 3:00:00 PM	QUAD21C	8/22/1997 9:23:19 AM	B0LJW0	30	49	1.60268817	231	6.683871
	LIQUID		Bkg:	8/22/1997 12:15:40 AM	BKG	620	19	0.03064516	630	1.0161290
Anl Date: 8/22/1997	Tot Sa, Alq: 3.00E+00	, 1.00E+01	Alp; (Dpm/ 4.69E+00	(uCi/ 6.34E-04	(pCi/ 2.11E+02	± 3.4E+01	CAT I	1.2E-01	Lab Alq Lig	
Ppt mg: 3.3	Units: L	, ml	Bet; Alq): 1.23E+01	Sa): 1.66E-03	Lig): 5.53E+02	± 4.4E+01		9.0E-02		
BHI B0LKC5		8/21/1997 3:00:00 PM	QUAD21D	8/22/1997 9:23:19 AM	B0LKC5	30	129	4.26612903	4973	164.88441
	LIQUID		Bkg:	8/22/1997 12:15:40 AM	BKG	620	21	0.03387097	547	0.8822581
Anl Date: 8/22/1997	Tot Sa, Alq: 9.00E+00	, 1.00E+01	Alp; (Dpm/ 9.32E+00	(uCi/ 3.78E-03	(pCi/ 4.20E+02	± 4.7E+01	CAT II	6.0E-02	Lab Alq Lig	
Ppt mg: 10	Units: L	, ml	Bet; Alq): 3.27E+02	Sa): 1.33E-01	Lig): 1.47E+04	± 2.1E+02		3.4E-03		
BHI TEDF0821971		8/21/1997 3:00:00 PM	QUAD22A	8/22/1997 9:23:24 AM	TEDF0821971	30	13	0.39784946	62	1.1602151
	LIQUID		Bkg:	8/22/1997 12:15:48 AM	BKG	620	22	0.03548387	562	0.9064516
Anl Date: 8/22/1997	Tot Sa, Alq: 5.00E-01	, 1.00E+01	Alp; (Dpm/ 1.14E+00	(uCi/ 2.57E-05	(pCi/ 5.15E+01	± 2.2E+01	CAT I	4.9E-01	Lab Alq Lig	
Ppt mg: 2.5	Units: L	, ml	Bet; Alq): 1.93E+00	Sa): 4.35E-05	Lig): 8.69E+01	± 2.2E+01		5.8E-01		

000010

8/22/97

Quanterra Environmental Services

BW & WP

Login No.: 012589
15672

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: _____

Date: 8-23-97 Time: 09:52

Project No: 550.230

Initiated by: Jerd Mitchell

Shipper/No: AB 599 9615 716

RFA/COC Numbers: 64789

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 designee) Jerd Mitchell Date: 8-23-97

Project Management Review: [illegible] Date: 9/9/97

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

8707 ~~3706~~ 10/15A

Log: W01866

LABORATORY NONCONFORMANCE MEMO (NCM)

Quanterra Incorporated

Project ID/Client: 550.230

NCM Initiated by/Date: DES 10-14-97 Project Manager: W. Price

Sample Numbers QC batch or lot numbers: 15672-001

Tests: 8316 Acrylamide

Analytical Area (check appropriate area):

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

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

Holding Time Violations (exceeded by 2 days)

Category I: Laboratory Independent

- ☐ 1. Holding time expired in transit
- ☐ 2. Sample rec'd > 48 hrs after sampling, or > 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) Capacity to set up for analysis

Category III: Analysis Reruns (QA/QC)

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

Category IV: Analysis Reruns (Confirmation)

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

Category V: Analysis Reruns (Dilution)

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

Quality Assurance/Quality Control

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

Incorrect or Incomplete Client Deliverable

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

Reported Detection Limits Elevated Due to:

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

Miscellaneous

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

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

Client notified by (name and date): WAP

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

Client's name and response:

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

Project manager (signature and date): W. Price 10/18/97

0000014

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 : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/16/97

Client ID: BOL3Y4

Quanterra ID : 15672-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Dichlorodifluoromethane	75-71-8	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Chloromethane	74-87-3	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Acrolein	107-02-8	QCBLK151595-1	09/04/97	09/04/97	100	UG/L	U	100	1
Methylene Chloride	75-09-2	QCBLK151595-1	09/04/97	09/04/97	8	UG/L	B	5	1
Acetone	67-64-1	QCBLK151595-1	09/04/97	09/04/97	25	UG/L		20	1
Trichlorofluoromethane	75-69-4	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Allyl chloride	107-05-1	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Carbon Disulfide	75-15-0	QCBLK151595-1	09/04/97	09/04/97	10	UG/L		5	1
1,1-Dichloroethene	75-35-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Acetonitrile	75-05-8	QCBLK151595-1	09/04/97	09/04/97	100	UG/L	U	100	1
Acrylonitrile	107-13-1	QCBLK151595-1	09/04/97	09/04/97	100	UG/L	U	100	1
Propionitrile	107-12-0	QCBLK151595-1	09/04/97	09/04/97	20	UG/L	U	20	1
1,1-Dichloroethane	75-34-3	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
trans-1,2-Dichloroethene	156-60-5	QCBLK151595-1	09/04/97	09/04/97	2	UG/L	U	2	1
Iodomethane	74-88-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK151595-1	09/04/97	09/04/97	110	UG/L		5	1
1,2-Dichloroethane	107-06-2	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
2-Chloro-1,3-butadiene	126-99-8	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Methacrylonitrile	126-98-7	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK151595-1	09/04/97	09/04/97	20	UG/L	U	20	1
Isobutyl alcohol	78-83-1	QCBLK151595-1	09/04/97	09/04/97	200	UG/L	U	200	1
1,1,1-Trichloroethane	71-55-6	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Vinyl Acetate	108-05-4	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
Bromodichloromethane	75-27-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Methyl methacrylate	80-62-6	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Ethyl methacrylate	97-63-2	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
1,1,2-Trichloroethane	79-00-5	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Dibromomethane	74-95-3	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
1,2-Dibromoethane	106-93-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
1,4-Dioxane	123-91-1	QCBLK151595-1	09/04/97	09/04/97	500	UG/L	U	500	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK151595-1	09/04/97	09/04/97	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK151595-1	09/04/97	09/04/97	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
1,1,1,2-Tetrachloroethane	630-20-6	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
trans,1,4-Dichloro-2-butene	110-57-6	QCBLK151595-1	09/04/97	09/04/97	100	UG/L	U	100	1
Xylene (total)	1330-20-7	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
Pentachloroethane	76-01-7	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
1,2,3-Trichloropropane	96-18-4	QCBLK151595-1	09/04/97	09/04/97	5	UG/L	U	5	1
1,2-Dibromo-3-chloropropane	96-12-8	QCBLK151595-1	09/04/97	09/04/97	10	UG/L	U	10	1
1,2-Dichlorobenzene	95-50-1	QCBLK151595-1	09/04/97	09/04/97	2	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK151595-1	09/04/97	09/04/97	93	%REC			1
Bromofluorobenzene	460-00-4	QCBLK151595-1	09/04/97	09/04/97	87	%REC			1
1,2-Dichloroethane-d4	17070-07-0	QCBLK151595-1	09/04/97	09/04/97	90	%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 : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/16/97

Client ID: B0L3Y4

Quanterra ID : 15672-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK151595-1	09/04/97	09/04/97	99	%REC			1
Trichloroethene	79-01-6	QCBLK151595-1	09/04/97	09/04/97	92	%REC			1
Benzene	71-43-2	QCBLK151595-1	09/04/97	09/04/97	87	%REC			1
Toluene	108-88-3	QCBLK151595-1	09/04/97	09/04/97	88	%REC			1
Chlorobenzene	108-90-7	QCBLK151595-1	09/04/97	09/04/97	91	%REC			1
Toluene-d8	2037-26-5	QCBLK151595-1	09/04/97	09/04/97	93	%REC			1
Bromofluorobenzene	460-00-4	QCBLK151595-1	09/04/97	09/04/97	88	%REC			1
1,2-Dichloroethane-d4	17070-07-0	QCBLK151595-1	09/04/97	09/04/97	96	%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 : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/16/97

Client ID: BOL3Y4

Quanterra ID : 15672-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK151595-1	09/04/97	09/04/97	97	%REC			1
Trichloroethene	79-01-6	QCBLK151595-1	09/04/97	09/04/97	93	%REC			1
Benzene	71-43-2	QCBLK151595-1	09/04/97	09/04/97	90	%REC			1
Toluene	108-88-3	QCBLK151595-1	09/04/97	09/04/97	87	%REC			1
Chlorobenzene	108-90-7	QCBLK151595-1	09/04/97	09/04/97	95	%REC			1
Toluene-d8	2037-26-5	QCBLK151595-1	09/04/97	09/04/97	93	%REC			1
Bromofluorobenzene	460-00-4	QCBLK151595-1	09/04/97	09/04/97	89	%REC			1
1,2-Dichloroethane-d4	17070-07-0	QCBLK151595-1	09/04/97	09/04/97	101	%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: BOL3Y4

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/17/97

Quanterra ID : 15672-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK151410-1	09/03/97	09/03/97	10	UG/L	U	10	5
Bromomethane	74-83-9	QCBLK151410-1	09/03/97	09/03/97	10	UG/L	U	10	5
Vinyl Chloride	75-01-4	QCBLK151410-1	09/03/97	09/03/97	10	UG/L	U	10	5
Chloroethane	75-00-3	QCBLK151410-1	09/03/97	09/03/97	10	UG/L	U	10	5
Methylene Chloride	75-09-2	QCBLK151410-1	09/03/97	09/03/97	3	UG/L	BJ	5	5
Acetone	67-64-1	QCBLK151410-1	09/03/97	09/03/97	21	UG/L		20	5
Carbon Disulfide	75-15-0	QCBLK151410-1	09/03/97	09/03/97	1	UG/L	J	5	5
1,1-Dichloroethene	75-35-4	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
1,1-Dichloroethane	75-34-3	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
1,2-Dichloroethene (total)	540-59-0	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Chloroform	67-66-3	QCBLK151410-1	09/03/97	09/03/97	120	UG/L		5	5
1,2-Dichloroethane	107-06-2	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
2-Butanone (MEK)	78-93-3	QCBLK151410-1	09/03/97	09/03/97	20	UG/L	U	20	5
1,1,1-Trichloroethane	71-55-6	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Carbon Tetrachloride	56-23-5	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Bromodichloromethane	75-27-4	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
1,2-Dichloropropane	78-87-5	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
cis-1,3-Dichloropropene	10061-01-5	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Trichloroethene	79-01-6	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Dibromochloromethane	124-48-1	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
1,1,2-Trichloroethane	79-00-5	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Benzene	71-43-2	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
trans-1,3-Dichloropropene	10061-02-6	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Bromoform	75-25-2	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK151410-1	09/03/97	09/03/97	20	UG/L	U	20	5
2-Hexanone	591-78-6	QCBLK151410-1	09/03/97	09/03/97	20	UG/L	U	20	5
Tetrachloroethene	127-18-4	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Toluene	108-88-3	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Chlorobenzene	108-90-7	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
EthylBenzene	100-41-4	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Styrene	100-42-5	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Xylene (total)	1330-20-7	QCBLK151410-1	09/03/97	09/03/97	5	UG/L	U	5	5
Toluene-d8	2037-26-5	QCBLK151410-1	09/03/97	09/03/97	101	%REC			5
Bromofluorobenzene	460-00-4	QCBLK151410-1	09/03/97	09/03/97	90	%REC			5
Dibromofluoromethane	1868-53-7	QCBLK151410-1	09/03/97	09/03/97	106	%REC			5

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/16/97

Client ID: B0L3Y4

Quanterra ID : 15672-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK151410-1	09/03/97	09/03/97	135	%REC			5
Trichloroethene	79-01-6	QCBLK151410-1	09/03/97	09/03/97	105	%REC			5
Benzene	71-43-2	QCBLK151410-1	09/03/97	09/03/97	99	%REC			5
Toluene	108-88-3	QCBLK151410-1	09/03/97	09/03/97	102	%REC			5
Chlorobenzene	108-90-7	QCBLK151410-1	09/03/97	09/03/97	99	%REC			5
Toluene-d8	2037-26-5	QCBLK151410-1	09/03/97	09/03/97	101	%REC			5
Bromofluorobenzene	460-00-4	QCBLK151410-1	09/03/97	09/03/97	89	%REC			5
Dibromofluoromethane	1868-53-7	QCBLK151410-1	09/03/97	09/03/97	101	%REC			5

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/16/97

Client ID: BOL3Y4

Quanterra ID : 15672-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK151410-1	09/03/97	09/03/97	131	%REC			5
Trichloroethene	79-01-6	QCBLK151410-1	09/03/97	09/03/97	107	%REC			5
Benzene	71-43-2	QCBLK151410-1	09/03/97	09/03/97	101	%REC			5
Toluene	108-88-3	QCBLK151410-1	09/03/97	09/03/97	98	%REC			5
Chlorobenzene	108-90-7	QCBLK151410-1	09/03/97	09/03/97	97	%REC			5
Toluene-d8	2037-26-5	QCBLK151410-1	09/03/97	09/03/97	98	%REC			5
Bromofluorobenzene	460-00-4	QCBLK151410-1	09/03/97	09/03/97	90	%REC			5
Dibromofluoromethane	1868-53-7	QCBLK151410-1	09/03/97	09/03/97	107	%REC			5

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0L3Y4

Lab Name: QUANTERRA MO Contract: 550-230

Lab Code: ITMO Case No.: V67201 SAS No.: SDG No.: W01866

Matrix: (soil/water) WATER Lab Sample ID: 15672-001

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G8697

Level: (low/med) LOW Date Received: 08/21/97

% Moisture: not dec. Date Analyzed: 09/03/97

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 5.0

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

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	BJ
67-64-1	Acetone	21	
75-15-0	Carbon Disulfide	1	J
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	120	
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0L3Y4

Lab Name: QUANTERRA MO Contract: 550-230

Lab Code: ITMO Case No.: V67201 SAS No.: SDG No.: W01866

Matrix: (soil/water) WATER Lab Sample ID: 15672-001

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G8697

Level: (low/med) LOW Date Received: 08/21/97

% Moisture: not dec. Date Analyzed: 09/03/97

GC Column: RTX-502.2 ID: 0.530 (mm) Dilution Factor: 5.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0L3Y4

Lab Name: QUANTERRA MO Contract: 550-230

Lab Code: ITMO Case No.: V67201 SAS No.: SDG No.: W01866

Matrix: (soil/water) WATER Lab Sample ID: 15672-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: G8703

Level: (low/med) LOW Date Received: 08/21/97

% Moisture: not dec. Date Analyzed: 09/04/97

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
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
107-02-8	Acrolein	100	U
75-09-2	Methylene Chloride	8	B
67-64-1	Acetone	25	
75-69-4	Trichlorofluoromethane	10	U
107-05-1	Allyl chloride	10	U
75-15-0	Carbon Disulfide	10	
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U
107-13-1	Acrylonitrile	100	U
107-12-0	Propionitrile	20	U
75-34-3	1,1-Dichloroethane	5	U
156-60-5	Trans-1,2-Dichloroethene	2	U
74-88-4	Iodomethane	5	U
67-66-3	Chloroform	110	
107-06-2	1,2-Dichloroethane	5	U
126-99-8	2-Chlor-1,3-Butadiene	5	U
126-98-7	Methacrylonitrile	5	U
78-93-3	2-Butanone	20	U
78-83-1	Isobutyl alcohol	200	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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0L3Y4

Lab Name: QUANTERRA MO Contract: 550-230

Lab Code: ITMO Case No.: V67201 SAS No.: SDG No.: W01866

Matrix: (soil/water) WATER Lab Sample ID: 15672-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: G8703

Level: (low/med) LOW Date Received: 08/21/97

% Moisture: not dec. Date Analyzed: 09/04/97

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
10061-01-5	cis-1,3-Dichloropropene	5	U
80-62-6	Methyl methacrylate	5	U
79-01-6	Trichloroethene	5	U
97-63-2	Ethyl methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
74-95-3	Dibromomethane	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
106-93-4	1,2-Dibromoethane	5	U
123-91-1	1,4-Dioxane	500	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
124-48-1	Dibromochloromethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
110-57-6	trans-1,4-Dichloro-2-butene	100	U
1330-20-7	Xylene (total)	5	U
76-01-7	Pentachloroethane	10	U
96-18-4	1,2,3-Trichloropropane	5	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0L3Y4

Lab Name: QUANTERRA MO Contract: 550-230

Lab Code: ITMO Case No.: V67201 SAS No.: SDG No.: W01866

Matrix: (soil/water) WATER Lab Sample ID: 15672-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: G8703

Level: (low/med) LOW Date Received: 08/21/97

% Moisture: not dec. Date Analyzed: 09/04/97

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	1,2-Dichlorobenzene	22.60	2	J

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3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/16/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOL3Y4	15672-001	Acrylamide	79-06-1	QCBLK150372-1	10/13/97	10/13/97	100	UG/L	U	100	1
BOL3Y4	15672-001MS	Acrylamide	79-06-1	QCBLK150372-1	10/13/97	10/13/97	195	%REC			1
BOL3Y4	15672-001MSD	Acrylamide	79-06-1	QCBLK150372-1	10/13/97	10/13/97	228	%REC			1
NA	QCBLK150372-1	Acrylamide	79-06-1	QCBLK150372-1	10/13/97	10/13/97	100	UG/L	U	100	1
NA	QCSPK150372-1	Acrylamide	79-06-1	QCBLK150372-1	10/13/97	10/13/97	79	%REC			1

1D
ACRYLAMIDE ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOL3Y4

Lab Name: QUANTERRA MO Contract: 550.23

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: W01866

Matrix : (soil/water) WATER Lab Sample ID: 15672-001

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

Level: (low/med) LOW Date Sampled: 08-21-97

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

Extraction:(SepF/Cont/Sonc/Shak)_____ Date Analyzed: 10-13-97

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

Sample Date : 06/21/97
Receipt Date : 08/21/97
Report Date : 09/11/97

Client ID: BOL3Y4

Quanterra ID : 15672-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK151768-1	09/08/97	09/09/97	59.8	UG/L	B	200	1
Antimony	7440-36-0	QCBLK151768-1	09/08/97	09/09/97	42.5	UG/L	U	60.0	1
Barium	7440-39-3	QCBLK151768-1	09/08/97	09/09/97	45.4	UG/L	B	200	1
Beryllium	7440-41-7	QCBLK151768-1	09/08/97	09/09/97	0.40	UG/L	U	5.0	1
Cadmium	7440-43-9	QCBLK151768-1	09/08/97	09/09/97	2.9	UG/L	U	5.0	1
Calcium	7440-70-2	QCBLK151768-1	09/08/97	09/09/97	36100	UG/L		5000	1
Chromium	7440-47-3	QCBLK151768-1	09/08/97	09/09/97	2.7	UG/L	U	10.0	1
Cobalt	7440-48-4	QCBLK151768-1	09/08/97	09/09/97	4.0	UG/L	U	50.0	1
Copper	7440-50-8	QCBLK151768-1	09/08/97	09/09/97	4.4	UG/L	U	25.0	1
Iron	7439-89-6	QCBLK151768-1	09/08/97	09/09/97	623	UG/L		100	1
Magnesium	7439-95-4	QCBLK151768-1	09/08/97	09/09/97	5210	UG/L		5000	1
Manganese	7439-96-5	QCBLK151768-1	09/08/97	09/09/97	25.3	UG/L		15.0	1
Nickel	7440-02-0	QCBLK151768-1	09/08/97	09/09/97	14.8	UG/L	U	40.0	1
Potassium	7440-09-7	QCBLK151768-1	09/08/97	09/09/97	1770	UG/L	U	5000	1
Silver	7440-22-4	QCBLK151768-1	09/08/97	09/09/97	6.7	UG/L	U	10.0	1
Sodium	7440-23-5	QCBLK151768-1	09/08/97	09/09/97	9060	UG/L		5000	1
Vanadium	7440-62-2	QCBLK151768-1	09/08/97	09/09/97	4.9	UG/L	U	50.0	1
Zinc	7440-66-6	QCBLK151768-1	09/08/97	09/09/97	51.7	UG/L		20.0	1

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3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 09/11/97

Client ID: B0L3Y4

Quanterra ID : 15672-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK151768-1	09/08/97	09/09/97	99	%REC			1
Antimony	7440-36-0	QCBLK151768-1	09/08/97	09/09/97	96	%REC			1
Barium	7440-39-3	QCBLK151768-1	09/08/97	09/09/97	96	%REC			1
Beryllium	7440-41-7	QCBLK151768-1	09/08/97	09/09/97	100	%REC			1
Cadmium	7440-43-9	QCBLK151768-1	09/08/97	09/09/97	92	%REC			1
Calcium	7440-70-2	QCBLK151768-1	09/08/97	09/09/97	98	%REC			1
Chromium	7440-47-3	QCBLK151768-1	09/08/97	09/09/97	95	%REC			1
Cobalt	7440-48-4	QCBLK151768-1	09/08/97	09/09/97	97	%REC			1
Copper	7440-50-8	QCBLK151768-1	09/08/97	09/09/97	100	%REC			1
Iron	7439-89-6	QCBLK151768-1	09/08/97	09/09/97	97	%REC			1
Magnesium	7439-95-4	QCBLK151768-1	09/08/97	09/09/97	98	%REC			1
Manganese	7439-96-5	QCBLK151768-1	09/08/97	09/09/97	95	%REC			1
Nickel	7440-02-0	QCBLK151768-1	09/08/97	09/09/97	97	%REC			1
Potassium	7440-09-7	QCBLK151768-1	09/08/97	09/09/97	108	%REC			1
Silver	7440-22-4	QCBLK151768-1	09/08/97	09/09/97	97	%REC			1
Sodium	7440-23-5	QCBLK151768-1	09/08/97	09/09/97	101	%REC			1
Vanadium	7440-62-2	QCBLK151768-1	09/08/97	09/09/97	99	%REC			1
Zinc	7440-66-6	QCBLK151768-1	09/08/97	09/09/97	98	%REC			1

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3350 George Washington Way
Richland, WA 99352

Project: 550.230

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

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 09/11/97

Client ID: B0L3Y4

Quanterra ID : 15672-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK151768-1	09/08/97	09/09/97	100	%REC			1
Antimony	7440-36-0	QCBLK151768-1	09/08/97	09/09/97	91	%REC			1
Barium	7440-39-3	QCBLK151768-1	09/08/97	09/09/97	98	%REC			1
Beryllium	7440-41-7	QCBLK151768-1	09/08/97	09/09/97	102	%REC			1
Cadmium	7440-43-9	QCBLK151768-1	09/08/97	09/09/97	97	%REC			1
Calcium	7440-70-2	QCBLK151768-1	09/08/97	09/09/97	101	%REC			1
Chromium	7440-47-3	QCBLK151768-1	09/08/97	09/09/97	96	%REC			1
Cobalt	7440-48-4	QCBLK151768-1	09/08/97	09/09/97	100	%REC			1
Copper	7440-50-8	QCBLK151768-1	09/08/97	09/09/97	102	%REC			1
Iron	7439-89-6	QCBLK151768-1	09/08/97	09/09/97	101	%REC			1
Magnesium	7439-95-4	QCBLK151768-1	09/08/97	09/09/97	100	%REC			1
Manganese	7439-96-5	QCBLK151768-1	09/08/97	09/09/97	96	%REC			1
Nickel	7440-02-0	QCBLK151768-1	09/08/97	09/09/97	100	%REC			1
Potassium	7440-09-7	QCBLK151768-1	09/08/97	09/09/97	111	%REC			1
Silver	7440-22-4	QCBLK151768-1	09/08/97	09/09/97	90	%REC			1
Sodium	7440-23-5	QCBLK151768-1	09/08/97	09/09/97	102	%REC			1
Vanadium	7440-62-2	QCBLK151768-1	09/08/97	09/09/97	101	%REC			1
Zinc	7440-66-6	QCBLK151768-1	09/08/97	09/09/97	97	%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 : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/17/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0L3Y4	15672-001	Arsenic	7440-38-2	QCBLK150404-1	08/26/97	08/27/97	1.1	UG/L	U	10.0	1
B0L3Y4	15672-001MS	Arsenic	7440-38-2	QCBLK150404-1	08/26/97	08/27/97	104	%REC			1
B0L3Y4	15672-001MSD	Arsenic	7440-38-2	QCBLK150404-1	08/26/97	08/27/97	105	%REC			1
NA	QCBLK150404-1	Arsenic	7440-38-2	QCBLK150404-1	08/26/97	08/27/97	102	%REC			1
NA	QCLCS150404-1	Arsenic	7440-38-2	QCBLK150404-1	08/26/97	08/27/97	1.1	UG/L	U	10.0	1

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0L3Y4

Lab Name: QUANTERRA_MO Contract: 550.230

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01866

Matrix (soil/water): WATER Lab Sample ID: 15672-001

Level (low/med): LOW Date Received: 08/21/97

% 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	59.8	B		P
7440-36-0	Antimony	42.5	U		P
7440-38-2	Arsenic	1.1	U		F
7440-39-3	Barium	45.4	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.9	U		P
7440-70-2	Calcium	36100			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	4.0	U		P
7440-50-8	Copper	4.4	U		P
7439-89-6	Iron	623			P
7439-95-4	Magnesium	5210			P
7439-96-5	Manganese	25.3			P
7440-02-0	Nickel	14.8	U		P
7440-09-7	Potassium	1770	U		P
7440-22-4	Silver	6.7	U		P
7440-23-5	Sodium	9060			P
7440-62-2	Vanadium	4.9	U		P
7440-66-6	Zinc	51.7			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: pH EPA 150.1
Method: EPA 150.1
Matrix: LIQUID

Sample Date : 06/21/97
Receipt Date : 08/21/97
Report Date : 09/17/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0L3Y4	15672-001	pH	PH	QCBLK150528-1	08/26/97	08/26/97	6.84	PH			1
B0L3Y4	15672-001DUP	pH	PH	QCBLK150528-1	08/26/97	08/26/97	6.88	PH			1
NA	QCBLK150528-1	pH	PH	QCBLK150528-1	08/26/97	08/26/97	4.61	PH			1

Bechtel Hanford Incoporated
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Richland, WA 99352

Project: 550.230

Category: TDS
Method: EPA 160.1
Matrix: LIQUID

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 09/17/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOL3Y4	15672-001	Total Dissolved	TDS	QCBLK150527-1	08/26/97	08/26/97	188	MG/L		5.00	1
BOL3Y4	15672-001DUP	Total Dissolved	TDS	QCBLK150527-1	08/26/97	08/26/97	189	MG/L		5.00	1
NA	QCBLK150527-1	Total Dissolved	TDS	QCBLK150527-1	08/26/97	08/26/97	5.00	MG/L	U	5.00	1
NA	QCLCS150527-1	Total Dissolved	TDS	QCBLK150527-1	08/26/97	08/26/97	96	%REC			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 : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/17/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0L3Y4	15672-001	Total Suspended	TSS	QCBLK150526-1	08/26/97	08/26/97	7.0	MG/L		1.00	1
B0L3Y4	15672-001DUP	Total Suspended	TSS	QCBLK150526-1	08/26/97	08/26/97	7.0	MG/L		1.00	1
NA	QCBLK150526-1	Total Suspended	TSS	QCBLK150526-1	08/26/97	08/26/97	1.00	MG/L	U	1.00	1
NA	QCLCS150526-1	Total Suspended	TSS	QCBLK150526-1	08/26/97	08/26/97	94	%REC			1

Bechtel Hanford Incoporated
3350 George Washington Way
Richland, WA 99352

Project: 550.230

Category: Sulfate
Method: EPA 375.4
Matrix: LIQUID

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/17/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0L3Y4	15672-001	Sulfate	14808-79-8	QCBLK151207-1	09/03/97	09/03/97	36.2	MG/L		5.00	1
B0L3Y4	15672-001DUP	Sulfate	14808-79-8	QCBLK151207-1	09/03/97	09/03/97	36.9	MG/L		5.00	1
B0L3Y4	15672-001MS	Sulfate	14808-79-8	QCBLK151207-1	09/03/97	09/03/97	79	%REC			2
NA	QCBLK151207-1	Sulfate	14808-79-8	QCBLK151207-1	09/03/97	09/03/97	5.00	MG/L	U	5.00	1
NA	QCLCS151207-1	Sulfate	14808-79-8	QCBLK151207-1	09/03/97	09/03/97	98	%REC			1

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Project: 550.230

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

Sample Date : 08/21/97
Receipt Date : 08/21/97
Report Date : 10/17/97

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0L3Y4	15672-001	Total Chlorine	7782-50-5A	QCBLK150651-1	08/27/97	08/27/97	0.100	MG/L	U	0.100	1
B0L3Y4	15672-001DUP	Total Chlorine	7782-50-5A	QCBLK150651-1	08/27/97	08/27/97	0.100	MG/L	U	0.100	1
NA	QCBLK150651-1	Total Chlorine	7782-50-5A	QCBLK150651-1	08/27/97	08/27/97	0.100	MG/L	U	0.100	1
NA	QCLCS150651-1	Total Chlorine	7782-50-5A	QCBLK150651-1	08/27/97	08/27/97	100	%REC			1