W02160

Quanterra
Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
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CASE NARRATIVE

0049194

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

February 7, 1998

Attention: Joan Kessner

MAY 1998 RECEIVED EDMC

FEB 1998 RECEIVED Data Log In

Project Number	:	550.257
Date Received by Lab	:	January 2 through 8, 1998
Number of Samples	:	Eighteen (18)
Sample Type	:	Water
SDG Number	:	W02160
Data Deliverable	:	Summary

I. Introduction

Between January 5 and 8, 1998, a total of eighteen (18) water samples were received by Quanterra, Richland and were transferred to Quanterra, St. Louis for chemical analyses. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client IDs:

St. Louis ID	BHI ID	Richland ID	Matrix	Date of Receipt
16616-001	B0MK84	80101301	Water	02-JAN-98
16616-002	B0MK85	80101302	Water	02-JAN-98
16616-003	B0MK76	80101303	Water	02-JAN-98
16616-004	B0MK77	80101304	Water	02-JAN-98
16616-005	B0MK78	80101305	Water	02-JAN-98
16616-006	B0MK79	80101306	Water	02-JAN-98
16616-007	B0MK81	80101307	Water	02-JAN-98
16616-008	B0MK82	80101308	Water	02-JAN-98
16616-009	B0MK83	80101309	Water	02-JAN-98
16616-010	B0MK86	80101310	Water	02-JAN-98
16616-011	B0MK87	80101311	Water	02-JAN-98
16616-012	B0MK93	80101312	Water	02-JAN-98
16616-013	B0MK94	80101313	Water	02-JAN-98
16618-001	B0MK88	80103101	Water	05-JAN-98
16618-002	B0MK89	80103102	Water	05-JAN-98
16619-001	B0MK96	80105201	Water	06-JAN-98
16619-002	B0MK95	80105202	Water	06-JAN-98
16623-001	B0MK98	80111801	Water	08-JAN-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
Anions (Fluoride, Nitrate, Nitrite and Sulfate) by EPA Method 300.0, Nitrate/Nitrite by EPA Method 353.1, ICP Metals (TAL plus Bismuth, Boron, Tin); (Supertrace-Arsenic, Lead and Selenium) by EPA 6010, Volatiles by EPA Method 8260 with 1-Butanol and Diethyl ether as TICs.

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.

IV. Definitions

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

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

V. Comments

Shipping and Receiving
There are no comments or nonconformances associated with the shipping and receiving of these samples.

Wet Chemistry
Samples 16616-001, 16616-001DUP, 16616-001MS and 16616-002 were received out of holding time for Nitrate and Nitrite analysis by EPA 300.0.

Metals
The ICP prep blank (PBW162803) had low level Copper contamination (0.03968 mg/L). The Copper results for the samples were less than the reporting limit (.025 mg/L) therefore all the data was reported.

Volatiles 8260
There were no hits found for the two requested library search compounds: 1-butanol and Di-ethyl Ether.

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:

Sheila Fourier for REW
Robert E. White
Project Manager

W0216C

Quanterra January 16, 1998 05:27 pm
Account: 10722 Project: 550.257 Quanterra-Richland QAS No. 550.257 Rev. 0
Master Sample Login: 16616

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.
16616-001	BOMK84	Water	31-DEC-97 08:15	02-JAN-98 10:50	22-JAN-98	AIRBORNE	1	Screening not Required	
RICHLAND I.D. 80101301; VOA = TCL + 1-BUTANOL, DIETHYL ETHER; ICP = TAL + BI, B, SN, AS, PB, SE									
3	VI - Vial-40ml	VOA/8260/04	S	HCL	19-JAN-98	14-JAN-98	1090	(349191:99 349192:98 349193:97)	
1	PN - Plastic-500ml	FL/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349188:99)	
1		ICAPT/6010/04	S	HNO3	19-JAN-98	29-JUN-98	T9C	(349190:99)	
1		NO2/300.0/04	S	COLD	19-JAN-98	02-JAN-98	T9C	(349188:99)	
1		NO3/300.0/04	S	COLD	19-JAN-98	02-JAN-98	T9C	(349188:99)	
1		NO3/353.1/04	S	H2SO4	19-JAN-98	28-JAN-98	T9C	(349189:99)	
1		SO4/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349188:99)	
16616-001DUP	BOMK84	Water	31-DEC-97 08:15	02-JAN-98 10:50	22-JAN-98	AIRBORNE	1	Screening not Required	
RICHLAND I.D. 80101301; VOA = TCL + 1-BUTANOL, DIETHYL ETHER; ICP = TAL + BI, B, SN, AS, PB, SE									
1	PN - Plastic-500ml	FL/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349188:99)	
1		NO2/300.0/04	S	COLD	19-JAN-98	02-JAN-98	T9C	(349188:99)	
1		NO3/300.0/04	S	COLD	19-JAN-98	02-JAN-98	T9C	(349188:99)	
1		NO3/353.1/04	S	H2SO4	19-JAN-98	28-JAN-98	T9C	(349189:99)	
1		SO4/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349188:99)	
16616-001MS	BOMK84	Water	31-DEC-97 08:15	02-JAN-98 10:50	22-JAN-98	AIRBORNE	1	Screening not Required	
RICHLAND I.D. 80101301; VOA = TCL + 1-BUTANOL, DIETHYL ETHER; ICP = TAL + BI, B, SN, AS, PB, SE									
3	VI - Vial-40ml	VOA/8260/04	S	HCL	19-JAN-98	14-JAN-98	1090	(349191:99 349192:98 349193:97)	
1	PN - Plastic-500ml	FL/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349188:99)	
1		ICAPT/6010/04	S	HNO3	19-JAN-98	29-JUN-98	T9C	(349190:99)	
1		NO2/300.0/04	S	COLD	19-JAN-98	02-JAN-98	T9C	(349188:99)	
1		NO3/300.0/04	S	COLD	19-JAN-98	02-JAN-98	T9C	(349188:99)	
1		NO3/353.1/04	S	H2SO4	19-JAN-98	28-JAN-98	T9C	(349189:99)	
1		SO4/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349188:99)	
16616-001MSD	BOMK84	Water	31-DEC-97 08:15	02-JAN-98 10:50	22-JAN-98	AIRBORNE	1	Screening not Required	
RICHLAND I.D. 80101301; VOA = TCL + 1-BUTANOL, DIETHYL ETHER; ICP = TAL + BI, B, SN, AS, PB, SE									
3	VI - Vial-40ml	VOA/8260/04	S	HCL	19-JAN-98	14-JAN-98	1090	(349191:99 349192:98 349193:97)	
1	PN - Plastic-500ml	ICAPT/6010/04	S	HNO3	19-JAN-98	29-JUN-98	T9C	(349190:99)	
16616-002	BOMK85	Water	31-DEC-97 07:45	02-JAN-98 10:50	22-JAN-98	AIRBORNE	1	Screening not Required	
RICHLAND I.D. 80101302; VOA = TCL + 1-BUTANOL, DIETHYL ETHER; ICP = TAL + BI, B, SN, AS, PB, SE									
3	VI - Vial-40ml	VOA/8260/04	S	HCL	19-JAN-98	14-JAN-98	1090	(349197:99 349198:98 349199:97)	
1	PN - Plastic-500ml	FL/300.0/04	S	COLD	19-JAN-98	28-JAN-98	T9C	(349194:99)	
1		ICAPT/6010/04	S	HNO3	19-JAN-98	29-JUN-98	T9C	(349196:99)	

3*=Sample has not been rad screened.

00005

Quanterra January 16, 1998 05:27 pm
Account: 10722 Project: 550.257 Quanterra-Richland QAS No. 550.257 Rev. 0
Master Sample Login: 16616

Project Manager: W. Price

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

Sample Header Template: _____

Sample No. / #	Client ID / Container Type	C-Matrix / Analysis	Date: Collected / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category	Rad Sample No. / (Container Numbers:% Filled)
Comments									
Date:									
1		N02/300.0/Q4	S	COLD	19-JAN-98	02-JAN-98	T9C		(349194:99)
1		N03/300.0/Q4	S	COLD	19-JAN-98	02-JAN-98	T9C		(349194:99)
1		N03/353.1/Q4	S	H2SO4	19-JAN-98	28-JAN-98	T9C		(349195:99)
1		SO4/300.0/Q4	S	COLD	19-JAN-98	28-JAN-98	T9C		(349194:99)
16616-003	BONK76	Water	29-DEC-97 05:30	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101303; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	12-JAN-98	109D		(349203:99 349204:98 349205:97)
16616-004	BONK77	Water	29-DEC-97 05:35	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101304; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	12-JAN-98	109D		(349206:99 349207:98 349208:97)
16616-005	BONK78	Water	30-DEC-97 05:40	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101305; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	13-JAN-98	109D		(349209:99 349210:98 349211:97)
16616-006	BONK79	Water	30-DEC-97 05:42	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101306; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	13-JAN-98	109D		(349212:99 349213:98 349214:97)
16616-007	BONK81	Water	31-DEC-97 05:50	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101307; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	14-JAN-98	109D		(349215:99 349216:98 349217:97)
16616-008	BONK82	Water	31-DEC-97 05:45	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101308; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	14-JAN-98	109D		(349218:99 349219:98 349220:97)
16616-009	BONK83	Water	31-DEC-97 05:48	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101309; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	14-JAN-98	109D		(349221:99 349222:98 349223:97)
16616-010	BONK86	Water	30-DEC-97 05:45	02-JAN-98 10:50	22-JAN-98	AIRBORNE		1	Screening not Required
RICHLAND I.D. 80101310; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	13-JAN-98	109D		(349224:99 349225:98 349226:97)

3*=Sample has not been rad screened.

00006

Quanterra January 16, 1998 05:27 pm
Account: 10722 Project: 550.257 Quanterra-Richland QAS No. 550.257 Rev. 0
Master Sample Login: 16616

oject Manager: W. Price

aft: Final: Entered and Reviewed by:_____ PM Review:_____

mple Header Template: _____

mple No. / # / ata:	Client ID / Container Type	C-Matrix / Analysis	Date: Collected / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category	Rad Sample No. / (Container Numbers:% Filled)
5616-011	BOMK87	Water	30-DEC-97 05:48	02-JAN-98 10:50	22-JAN-98		AIRBORNE	1	Screening not Required
RICHLAND I.D. 80101311; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	13-JAN-98	1090		(349227:99 349228:98 349229:97)
5616-012	BOMK93	Water	31-DEC-97 10:15	02-JAN-98 10:50	22-JAN-98		AIRBORNE	1	Screening not Required
RICHLAND I.D. 80101312; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	14-JAN-98	1090		(349230:99 349231:98 349232:97)
5616-013	BOMK94	Water	31-DEC-97 10:18	02-JAN-98 10:50	22-JAN-98		AIRBORNE	1	Screening not Required
RICHLAND I.D. 80101313; VOA = TCL + 1-BUTANOL, DIETHYL ETHER									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	19-JAN-98	14-JAN-98	1090		(349233:99 349234:98 349235:97)

*=Sample has not been rad screened.

00007

Temp 3E Curk # 13711
ST 10MD 13697

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: Bechtel	Project Manager: A. Koprivia	Date: 1-5-98	Chain of Custody Number: 00328
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
City / State / Zip Code	Site Contact	Lab Contact	
Project Name: SAF B98-003	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

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

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
R0101301 BOMK84 ✓											
2 85 ✓											
3 76 ✓											
4 77 ✓											
5 78 ✓											
6 79 ✓											
7 81 ✓											
8 82 ✓											
9 83 ✓											
10 86 ✓											
11 87 ✓											
12 93 ✓											
13 94 ✓											

Chemical analysis 1 bottle

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other ____

QC Requirements (Specify): SDG WQ2160

1. Relinquished By: Heidelberg QES	Date: 1-5-98	Time: 16:00	1. Received By: 2nd Mitchell	Date: 1-7-98	Time: 0815
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: Samples Rec 1-3-98

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-09	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERL 96-049	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.** DH 1 1		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HNO3 to pH <2	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo			
Type of Container	P	P	P	P	P	P	aGs*			
No. of Container(s)	1	1	1	1	3	3	3			
Volume	1L	500ml	500ml	500ml	1L	1L	40ml			
SAMPLE ANALYSIS	Gross Alpha; Gross Beta	See item (1) in Special Instructions	NO2/NO3 - 353.1	See item (2) in Special Instructions	See item (3) in Special Instructions	Strontium-89,90 -- Sr-90	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)			

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK84	Water	12-31-97	08:15	X	X	X	X	X	X	X			
					100	100	100			3X100			
					1-3								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg 1-2-98	0850	Bonny Bowers	1-2-98 / 0850
Bonny Bowers	1-2-98 / 1050	Lauren Hinkley	1-2-98 1000
R. Fahlberg	1-2-96 1600		
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Bismuth, Boron, Tin); ICP Metals - 6010A (Supertrace) (Arsenic, Lead, Selenium)
(3) Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Uranium-235)

Chem Bottles

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	B98-003-10	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC 96-047	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.** PH		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HNO3 to pH <2	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo			
Type of Container	P	P	P	P	P	P	aGs*			
No. of Container(s)	1	1	1	1	3	3	3			
Volume	1L	500ml	500ml	500ml	1L	1L	40ml			
SAMPLE ANALYSIS	Gross Alpha; Gross Beta	See item (1) in Special Instructions.	NO2/NO3 - 353.1	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Strontium-89,90 -- Sr-90	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)			

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK85	Water	12-31-97	07:45	X	X	X	X	X	X	X			
					100	100	100			102%			

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0850	D. Bowers	1-2-98 / 0850
D. Bowers	1-2-98 / 1050	Karen Stillinger	1-2-98
K. Stillinger	1-2-98 1600		

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Bismuth, Boron, Tin); ICP Metals - 6010A (Supertrace) (Arsenic, Lead, Selenium)
(3) Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Uranium-235)

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	B98-003-01	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo											
Type of Container	nGs*											
No. of Container(s)	3											
Volume	40ml											
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)											

Sample No.	Matrix *	Sample Date	Sample Time	[redacted]										
B0MK76	Water	12-29-97	~~14~~ 0530	X										
			PAS	3 (10)										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By 1-2-98 R. Fahlberg/R. Fahlberg	Date/Time 0900	Received By Doug Bowman	Date/Time 1-2-98 0900
Relinquished By Doug Bowman	Date/Time 1-2-98/1050	Received By Kevin Fahlberg	Date/Time 1-2-98 1050
Relinquished By R. Fahlberg 1-2-98	Date/Time 1200	Received By see chain	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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	B98-003-02	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC-96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

SAMPLE ANALYSIS

			Preservation	HCl or H2SO4 to pH <2 Coo									
			Type of Container	aGs*									
			No. of Container(s)	3									
			Volume	40ml									
			SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)									
Sample No.	Matrix *	Sample Date	Sample Time										
B0MK77	Water	12-29-97	0535	X									
				3x16									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0835	Dang Bowen	1-2-98 / 0910
Dang Bowen	1-2-98 / 1030	L. Hitterling	1-2-98 / 105 0
L. Hitterling	1-2-98 / 1600		

SPECIAL INSTRUCTIONS

Alison Butler

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	B98-003-03	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No.	Matrix *	Sample Date	Sample Time								
B0MK78	Water	12-30-97	05:40	X							
				3/150							

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1-2-98 0900	D Bowen / D Bowen	1-2-98 / 0900
D Bowen / D Bowen	1-2-98 / 1050	L Stebelung	1-2-98 1050
L Stebelung	1-2-98 1100		

SPECIAL INSTRUCTIONS

Drum Bottle

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

00013

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-04	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. BRC96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

SAMPLE ANALYSIS

Preservation	HCl or H2SO4 to pH <2 Coo											
Type of Container	sGs*											
No. of Container(s)	3											
Volume	40ml											
	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)											

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK79	Water	12-30-97	05:42	X									
				3X100									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg/R. Fahlberg	1-2-98 0910	D. Bowers	1-2-98/0910
D. Bowers	1-2-98/1050	K. Stittsberg	1-2-98 1050
K. Stittsberg	1-2-98 1600		

SPECIAL INSTRUCTIONS

Save Bottle

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	B98-003-06	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. EAC96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK81	Water	12/31/97	05:50	X									
				3									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg/R. Fahlberg	1-2-98 0905	Doug Bowen	1-2-98/0905
Doug Bowen	1-2-98/1050	Dawn Ettenburg	1-2-98 1100
R. Ettenburg	1-2-98 1100		

SPECIAL INSTRUCTIONS

Chem Bottles

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

00015

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-07	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. EAC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK82	Water	12/31/97	05:45	X									
				3X40									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0910	Doug Bowman	1-2-98 / 0910
Relinquished By	Date/Time	Received By	Date/Time
Doug Bowman	1-2-98 / 1050	Laura A. Hinkley	1-2-98 1050
Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg	1-2-98 1600	Laura A. Hinkley	
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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	B98-003-08	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. FRL 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]										

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK83	Water	12/31/97	05:48	X									
				3x100									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg/R. Fahlberg	1-2-98 0910	Doug Bowen	1-2-98/0910 1050
Doug Bowen	1-2-98/1050	Darrin Battles	1-2-98
R. Battles	1-2-98/1600		

SPECIAL INSTRUCTIONS

Darrin Battles

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

0001

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-11	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC 96.049	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time										
~~B0MK00~~ ~~B0MK85~~	~~Water~~												
~~12/31/97 005~~	DAS 12/31/97												
B0MK86	water	12/30/97	05:45	X									
				3x40									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R.Fahlberg/R.Fahlberg 1-2-98 0850	Received By Doug Bowers 1-2-98/0850		
Relinquished By Doug Bowers 1-2-98/1050	Received By Darren Sattenlung 1-2-98 1050		
Relinquished By K. Sattenlung 1-2-98 1600	Received By Chum Battles		
Relinquished By	Received By		

SPECIAL INSTRUCTIONS

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	B98-003-12	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-049	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]										

Sample No.	Matrix *	Sample Date	Sample Time										
BOMK87 ~~BOMK~~	Water	12/30/97	05:48	X									
12/30/97 DAS				3x100									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg/R. Fahlberg	1-2-98 0850	Doug Bowers	1-2-98 0850
Doug Bowers	1-2-98 1050	Karen Stillwell	1-2-98 1050
K. Stillwell	1-2-98 1600	Gilchrist Battelle	

SPECIAL INSTRUCTIONS

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

00019

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-18	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time											
B0MK93	Water	12-31-97	1015	X										
				3/100										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg/R. Fahlberg 1-2-98	Date/Time 0915	Received By Doug Bowers	Date/Time 1-2-98/0915
Relinquished By Doug Bowers 1-2-98/1050	Date/Time	Received By Karen Ottenburg	Date/Time 1-2-98 1050
Relinquished By K. Ottenburg 1-2-98	Date/Time 1600	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Chem Bottles

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

0002

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-19	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Diethyl ether}										

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK94	Water	12·31·97	1018 12·31·97	X									
				3X100									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg/R. Fahlberg 1-2-98 0915	Date/Time	Received By Dwayne Bowers 1-2-98/0915	Date/Time
Relinquished By Dwayne Bowers 1-2-98/1050	Date/Time	Received By Raymond Stenberg 1-2-98 1050	Date/Time
Relinquished By R. Stenberg 1-2-98 1600	Date/Time	Received By Norma Gallegos	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

CCN: 053570

Quanterra BOMK84

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

Ø pCi/gm

Job No. 22192
Written Response Required: NO
Due Date: N/A
Assignee: N/A
Close CCN: N/A
OU: 216 B2-2
TSD: N/A
ERA: N/A
Subject Code: 5850

TO: D. A. St John L0-19
C. D. Wittreich H9-06
F. G. Zwiesler X0-23

DATE: December 10, 1997

COPIES: See Below

FROM: S. K. De Mers
RadCon Engineering
X0-23/531-0729

SUBJECT: **USING FIELD READINGS TO DETERMINE SHIPPING REQUIREMENTS FOR SAMPLES IN SUPPORT OF THE 216 B 2-2 VADOSE ZONE INVESTIGATION**

REF: The Health Physics and Radiological Health Handbook

The purpose of this memo is to provide direction in determining using field instruments, when samples taken in support of the 216 B 2-2 vadose zone investigations must be shipped as radioactive material as defined in Department of Transportation requirements.

Radioactive material for shipping purposes is defined by the Department of Transportation as any material that has an activity in excess of 2,000 pCi/gm. For the purpose of conservatism, the demarcation point for determining radioactive material for shipping purposes will be 1,500 pCi/gm. Two separate approaches will be used to validate the use of field instruments to determine activity in soil samples.

The first approach is to use a formula for determining beta exposure rate from solutions of radioactive material contained in the *Health Physics and Radiological Health Handbook*. This formula is 2.12 times the average energy of the beta particle in MEV, times the concentration of the isotope in uCi/gm.

$$2.12\ X\ E\ X\ C = Rads/hr$$

Where; 2.12 is a conversion factor
E is the average energy of the beta particle (Sr90 = 0.195 MEV, Y90 = 0.935 MEV)
C is the concentration of the isotope in uCi/gm

Inserting the values for Sr/Y90 beta energy and the concentration of 1,500 pCi/gm

$$2.12\ X\ (0.195 + 0.935)\ X\ 1.5\ X\ 10^{-3}\ uCi/gm = 0.0036\ Rads/hr$$

0.0036 RADS/hr is equal to 3.6 mRad/hr. The field instrument has a correction factor of 3 for beta radiation, so the RO-20 (beta/gamma dose rate instrument) would read 1.2 mRad/hr. Field readings taken at the 216 B2-2 trench showed for each 1 mRad/hr as read (uncorrected) on the RO-20, the E-600 ratemeter equipped with an SH-380 plastic scintillator, read 100,000 dpm. Therefore, from the above comparison, a sample with an activity of 1,500 pCi/gm would read 1.2 mRad/hr on the RO-20 and 120,000 dpm on the E-600 equipped with a SH-380 probe.

For the second approach, a soil standard with 300 pCi/gm is used. This soil standard was read with an Electra ratemeter equipped with a DP-6 plastic scintillator that had 30% efficiency for Sr90. The 300 pCi/gm source read 16 cpm per pCi/gm. Multiplying this value by 1,500 pCi/gm would result in a reading on the Electra/DP-6 equipment of 80,000 dpm (using an efficiency of 30%). So for this instrument, 1,500 pCi/gm of Sr90 would read 80,000 dpm.

From this we can gather the 1,500 pCi/gm will range between 80,000 dpm and 120,000 dpm. The RCT and sampler/shipper will verify actual readings in the field using the 300-pCi/gm Sr90 source and logged. The 1,500-pCi/gm value will be used.

SKD:dld

Copies:
R. C. Havenor X0-17
V. J. Rohay H9-02
W. S. Thompson L0-19
RadCon Engineering FIle/LB X0-23
Document and Info Services H0-09

CCN: 053570

Quanterra Bom K85

Ø pCi/gm

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

Job No. 22192
Written Response Required: NO
Due Date: N/A
Action#: N/A
Closure CCN: N/A
OU: 216 B2-2
TSD: N/A
ERA: N/A
Subject Code: 5850

TO: D. A. St John L0-19
C. D. Wittreich H9-06
F. G. Zwiesler X0-23

DATE: December 10, 1997

COPIES: See Below

FROM: S. K. De Mers
RadCon Engineering
X0-23/531-0729

SUBJECT: **USING FIELD READINGS TO DETERMINE SHIPPING REQUIREMENTS FOR SAMPLES IN SUPPORT OF THE 216 B 2-2 VADOSE ZONE INVESTIGATION**

REF: The Health Physics and Radiological Health Handbook

The purpose of this memo is to provide direction in determining using field instruments, when samples taken in support of the 216 B 2-2 vadose zone investigations must be shipped as radioactive material as defined in Department of Transportation requirements.

Radioactive material for shipping purposes is defined by the Department of Transportation as any material that has an activity in excess of 2,000 pCi/gm. For the purpose of conservatism, the demarcation point for determining radioactive material for shipping purposes will be 1,500 pCi/gm. Two separate approaches will be used to validate the use of field instruments to determine activity in soil samples.

The first approach is to use a formula for determining beta exposure rate from solutions of radioactive material contained in the *Health Physics and Radiological Health Handbook*. This formula is 2.12 times the average energy of the beta particle in MEV, times the concentration of the isotope in uCi/gm.

$$2.12 \; X \; E \; X \; C = Rads/hr$$

Where; 2.12 is a conversion factor
E is the average energy of the beta particle (Sr90 = 0.195 MEV, Y90 = 0.935 MEV)
C is the concentration of the isotope in uCi/gm

Inserting the values for Sr/Y90 beta energy and the concentration of 1,500 pCi/gm

$$2.12 \; X \; (0.195 + 0.935) \; X \; 1.5 \; X \; 10^{-3} \; uCi/gm = 0.0036 \; Rads/hr$$

0.0036 RADS/hr is equal to 3.6 mRad/hr. The field instrument has a correction factor of 3 for beta radiation, so the RO-20 (beta/gamma dose rate instrument) would read 1.2 mRad/hr. Field readings taken at the 216 B2-2 trench showed for each 1 mRad/hr as read (uncorrected) on the RO-20, the E-600 ratemeter equipped with an SH-380 plastic scintillator, read 100,000 dpm. Therefore, from the above comparison, a sample with an activity of 1,500 pCi/gm would read 1.2 mRad/hr on the RO-20 and 120,000 dpm on the E-600 equipped with a SH-380 probe.

16

For the second approach, a soil standard with 300 pCi/gm is used. This soil standard was read with an Electra ratemeter equipped with a DP-6 plastic scintillator that had 30% efficiency for Sr90. The 300 pCi/gm source read 16 cpm per pCi/gm. Multiplying this value by 1,500 pCi/gm would result in a reading on the Electra/DP-6 equipment of 80,000 dpm (using an efficiency of 30%). So for this instrument, 1,500 pCi/gm of Sr90 would read 80,000 dpm.

From this we can gather the 1,500 pCi/gm will range between 80,000 dpm and 120,000 dpm. The RCT and sampler/shipper will verify actual readings in the field using the 300-pCi/gm Sr90 source and logged. The 1,500-pCi/gm value will be used.

SKD:dld

Copies:
R. C. Havenor X0-17
V. J. Rohay H9-02
W. S. Thompson L0-19
RadCon Engineering File/LB X0-23
Document and Info Services H0-09

CH2MHILL SUBJECT Quanterra Sample Sets BY D. St. John
216-B-2-2 Ditch SHEET NO. 1 of 2 DATE 1/: 98
Boring 8079 PROJECT NO.

Per Dowlers Total Act. Calc letter:

$$\left(\frac{\text{cpm soil}}{\text{cpm source}}\right) 300\ pCi/gm = \text{Sample Activity}$$

Assume all Sr-90

* BOMJC2

$$\left(\frac{1000\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{215\ pCi/gm}$$

* BOMJC8

$$\left(\frac{1500\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{321\ pCi/gm}$$

* BOMJD4

$$\left(\frac{1000\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{215\ pCi/gm}$$

* BOMK85 & BOMK84
No radioactivity

* BOMJD7

$$\left(\frac{150\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{32\ pCi/gm}$$

* BOMJF3

$$\left(\frac{150\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{32\ pCi/gm}$$

* BOMJJ1

$$\left(\frac{150\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{32\ pCi/gm}$$

216-B-2-2 Ditch SHEET NO 2 of 2 DATE 1/2/98

Boring 8079 PROJECT NO

* BOMJJ4

$$\left(\frac{100\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{22\ pCi/gm}$$

GRAHAM-MILL SUBJECT Quantera Sample Sets BY D. St. John
216-B-2-2 Ditch SHEET NO. 1 of 2 DATE 1/2/98
Boring 8079 PROJECT NO.

Per Dewlers Total Act. Calc Letter:

$$\left(\frac{\text{cpm soil}}{\text{cpm source}}\right) 300\ pCi/gm = \text{Sample Activity}$$

Assume all Sr-90

* BOMJC2

$$\left(\frac{1000\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{215\ pCi/gm}$$

* BOMJC8

$$\left(\frac{1500\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{321\ pCi/gm}$$

300

96000 pCi

.010 mCi

* BOMJD4

$$\left(\frac{1000\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{215\ pCi/gm}$$

* BOMK85 & BOMK84

No radioactivity

* BOMJD7

$$\left(\frac{150\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{32\ pCi/gm}$$

* BOMJF3

$$\left(\frac{150\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{32\ pCi/gm}$$

* BOMJJ1

$$\left(\frac{150\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{32\ pCi/gm}$$

216-B-2-2 Ditch
Burning 8079

SHEET NO. 2 of 2 DATE 1/2/98
PROJECT NO.

* BOMJJ4

$$\left(\frac{100\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{22\ pCi/gm}$$

Quanterra Environmental Services

BWSWP

013697

Login No.: 16616

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland

Date: 1-3-98 Time: 1000

Project No: 550.257

Initiated by: [illegible]

Shipper No: AB 5999712 412

RFA/COC Numbers: Na Rich COC 898-603

Condition/Variance (Check all that apply):

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

☐ No variances were noted during sample receipt.

Cooler Temperature Upon Receipt: 3°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: [illegible] Date: 1-3-98

Project Management Review: [illegible] Date: 1/16/98

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

Quanterra Environmental Services

Burdur

0 3711

Login No.: _____

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: _____ Date: 1-7-98 Time: 0815

Project No: _____ Initiated by: [illegible]

Shipper/No: Airborne RFA/COC Number: 328

Condition/Variance (Check all that apply):

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

☐ No variances were noted during sample receipt. Cooler Temperature Upon Receipt: 3°C

Notes: Samples Recv 1-3-98

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 designee) [signature] Date: 1-3-98

Project Management Review: [signature] Date: 1/16/98

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

00031

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

WO2160

Quanterra January 20, 1998 09:39 am
Account: 10722 Project: 550.257 Quanterra-Richland QAS No. 550.257 Rev. 0
Master Sample Login: 16618

Project Manager: W. Price

Draft: Final Entered and Reviewed by: [illegible] PM Review: [illegible]

Sample Header Template:

Sample No. / Comments / # / Data:	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16618-001	BOWK88	Water	02-JAN-98 10:15	05-JAN-98 10:05	23-JAN-98	AIRBORNE	1	Screening not Required
RICHLAND I.D. 80103101//VOA + 1-BUTANOL, DIETHYL ETHER AS TIC'S.								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	24-JAN-98	16-JAN-98	109D	(349509:99 349510:98 349511:97)
16618-002	BOWK89	Water	03-JAN-98 05:45	05-JAN-98 10:05	23-JAN-98	AIRBORNE	1	Screening not Required
RICHLAND I.D. 80103102//VOA + 1-BUTANOL, DIETHYL ETHER AS TIC'S.								
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	24-JAN-98	17-JAN-98	109D	(349512:99 349513:98 349514:97)

3*=Sample has not been rad screened.

00032

[redacted]

Chain of Custody Record

Temporary CURA / 3 / 96
ST LOUIS

Quanterra QC

QUA-4124 0797

Client: Bechtel	Project Manager: A. Koprwa	Date: 1-6-98	Chain of Custody Number: 00332
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
City / State / Zip Code	Site Contact	Lab Contact	
Project Name: SAF B98-003	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

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

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
80103101 B0MK88	all	matrices										
↓ 02 ↓ K89												

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other ____

QC Requirements (Specify): SDG-WO21Kd

	Date	Time		Date	Time
1. Relinquished By: Heidelberg QES	1-6-98	16:00	1. Received By: [illegible]	1-7-98	0815
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

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

00033

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-13	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Data Turnaround 45 Days			
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC-96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**
POSSIBLE SAMPLE HAZARDS/REMARKS			
Special Handling and/or Storage Cool 4C			

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80103101 SDL W02160	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time	[redacted]										
BCMK88	Water	1-2-98	1015	X 7x1										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Koeneiesh R. Fahlberg	Date/Time 1/5/98 1005	Received By: Heidelberg	Date/Time 1-5-98 1005
Relinquished By	Date/Time	Received By: Liuxpy	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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	B98-003-14	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC-96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

SAMPLE ANALYSIS 80103102

Preservation	HCl or H2SO4 to pH < 2 Cool											
Type of Container	aGs*											
No. of Container(s)	3											
Volume	40ml											
	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)											

Sample No.	Matrix *	Sample Date	Sample Time	[redacted]									
B0MK89	Water	1-3-97	0545	X									
				3X100									

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

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson for R. Fahlberg	1/9/98 1005	[signature]	1-5-98 1005
		400CRM	

SPECIAL INSTRUCTIONS

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

00035

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1/5 1000 SG#: W02160

Work Order Number: 801031 SAF #: B98-004 B98-003

Shipping Container ID: 96-060 Chain of Custody # B98-004-20 B98-003-13 +21 +14

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 4°
5. Vermiculite/packing materials is Wet [ ] Dry [✓] n/a
6. Number of samples in shipping container: 44
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: Heidelberg Date: 1-5-98

Telephoned To: _____ On _____ By _____

00036

CCN: 053570

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

Job No. 22192
Written Response Required: NO
Due Date: N/A
Activator: N/A
Closure CCN: N/A
OU: 216 B2-2
TSD: N/A
ERA: N/A
Subject Code: 5150

TO: D. A. St John L0-19
C. D. Wittreich H9-06
F. G. Zwiesler X0-23

DATE: December 10, 1997

COPIES: See Below

FROM: S. K. De Mers
RadCon Engineering
X0-23/531-0729

SUBJECT: **USING FIELD READINGS TO DETERMINE SHIPPING REQUIREMENTS FOR SAMPLES IN SUPPORT OF THE 216 B 2-2 VADOSE ZONE INVESTIGATION**

REF: The Health Physics and Radiological Health Handbook

The purpose of this memo is to provide direction in determining using field instruments, when samples taken in support of the 216 B 2-2 vadose zone investigations must be shipped as radioactive material as defined in Department of Transportation requirements.

Radioactive material for shipping purposes is defined by the Department of Transportation as any material that has an activity in excess of 2,000 pCi/gm. For the purpose of conservatism, the demarcation point for determining radioactive material for shipping purposes will be 1,500 pCi/gm. Two separate approaches will be used to validate the use of field instruments to determine activity in soil samples.

The first approach is to use a formula for determining beta exposure rate from solutions of radioactive material contained in the *Health Physics and Radiological Health Handbook*. This formula is 2.12 times the average energy of the beta particle in MEV, times the concentration of the isotope in uCi/gm.

$$2.12 \; X \; E \; X \; C = Rads/hr$$

Where; 2.12 is a conversion factor
E is the average energy of the beta particle (Sr90 = 0.195 MEV, Y90 = 0.935 MEV)
C is the concentration of the isotope in uCi/gm

Inserting the values for Sr/Y90 beta energy and the concentration of 1,500 pCi/gm

$$2.12 \; X \; (0.195 + 0.935) \; X \; 1.5 \; X \; 10^{-3} \; uCi/gm = 0.0036 \; Rads/hr$$

0.0036 RADS/hr is equal to 3.6 mRad/hr. The field instrument has a correction factor of 3 for beta radiation, so the RO-20 (beta/gamma dose rate instrument) would read 1.2 mRad/hr. Field readings taken at the 216 B2-2 trench showed for each 1 mRad/hr as read (uncorrected) on the RO-20, the E-600 ratemeter equipped with an SH-380 plastic scintillator, read 100,000 dpm. Therefore, from the above comparison, a sample with an activity of 1,500 pCi/gm would read 1.2 mRad/hr on the RO-20 and 120,000 dpm on the E-600 equipped with a SH-380 probe.

For the second approach, a soil standard with 300 pCi/gm is used. This soil standard was read with an Electra ratemeter equipped with a DP-6 plastic scintillator that had 30% efficiency for Sr90. The 300 pCi/gm source read 16 cpm per pCi/gm. Multiplying this value by 1,500 pCi/gm would result in a reading on the Electra/DP-6 equipment of 80,000 dpm (using an efficiency of 30%). So for this instrument, 1,500 pCi/gm of Sr90 would read 80,000 dpm.

From this we can gather the 1,500 pCi/gm will range between 80,000 dpm and 120,000 dpm. The RCT and sampler/shipper will verify actual readings in the field using the 300-pCi/gm Sr90 source and logged. The 1,500-pCi/gm value will be used.

SKD:dld

Copies:
R. C. Havenor X0-17
V. J. Rohay H9-02
W. S. Thompson LD-19
RadCon Engineering File/LB X0-23
Document and Info Services H0-09

Quanterra Environmental Services

013750

Bauer

Login No.: 16618

Condition Upon Receipt Variance Report:
St. Louis Laboratory

Client: Richland.

Project No: 550.257

Shipper/No: Airborne

Date: 1-7-98 Time: 0845

Initiated by: [illegible]

RFA/COC Numbers: 732

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4C ± 2C
     Record temperature: _____
   - ☐ pH _____
   - ☐ other: _____
3. ☐ Sample received in improper container.
4. ☐ Sample received without proper paperwork. Explain: _____
5. ☐ Paperwork received without sample.
6. ☐ No sample ID on sample container.
7. ☐ Custody seal 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: _____

☐ Samples: processed "as is".

☐ Samples: on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: [illegible] Date: 1-8-98

Project Management Review: [illegible] Date: 1/16/98

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

00039

SL-SMN-0004, Revision 11/12/95

W02160

Quanterra January 09, 1998 03:26 pm
Account: 10722 Project: 550.257 Quanterra-Richland QAS No. 550.257 Rev. 0
Master Sample Login: 16619

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.
16619-001	BOMK96	Water	05-JAN-98 13:42	06-JAN-98 11:38	26-JAN-98		AIRBORNE	1	Screening not Required
RICHLAND I.D. 80105201//VOA + 1-BUTANOL, DIETHYL ETHER AS TIC'S.									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	22-JAN-98	19-JAN-98	109D	(349521:99 349522:98 349523:97)	
16619-002	BOMK95	Water	05-JAN-98 06:00	06-JAN-98 11:38	26-JAN-98		AIRBORNE	1	Screening not Required
RICHLAND I.D. 80105202//VOA + 1-BUTANOL, DIETHYL ETHER AS TIC'S.									
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	22-JAN-98	19-JAN-98	109D	(349524:99 349525:98 349526:97)	

Comments
Date:

3*=Sample has not been rad screened.

00040

[redacted]

Chain of Custody Record

Temp 3° Cur# 13798
ST LOUIS 13765

Quanterra

NO QC

QUA 4124 0797

Client: Bechtel	Project Manager: A. Koprina	Date: 1-7-98	Chain of Custody Number: 00342
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
City / State / Zip Code	Site Contact	Lab Contact	
Project Name: SAF B98-003	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

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

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
80105201 BOMK96	all	dates										
↓ 02 ↓ K95												

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other _____

QC Requirements (Specify): SDG W0216D

1. Relinquished By: Heidelberg QES	Date: 1-7-98	Time: 16:00	1. Received By: [signature]	Date: 1-8-98	Time: 0845
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	B98-003-21	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC 96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80105201 SDL W02160	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**								
B0MK96	Water	1-5-98	1342	X							
				3x1ps							
				1/4							

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

Relinquished By	Date/Time	Received By	Date/Time
For R. Fahlberg	1-6-98/1138	Heidelberg	1-6-98 1138
		Hoogland	

SPECIAL INSTRUCTIONS

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	B98-003-20	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC 96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80105202	VOA - 8260A (TCL), VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]										

Sample No.	Matrix *	Sample Date	Sample Time	[redacted]									
B0MK95	Water	1-5-98	0600	X									
				3x,1W									
				1-7-98									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By For R. Fahlberg / Doug Bowers	Date/Time 1-6-98 1138	Received By D. Heidelberg	Date/Time 1-6-98 1138
Relinquished By	Date/Time	Received By 2100 pm	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

C5000

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1/6 - 1140 SG#: W0216D B98-003

Work Order Number: 801052 SAF #: B98-023 B98-004

Shipping Container ID: 96-060 Chain of Custody # B98-023-12 B98-004 B98-003-20 + 21

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 5° C
5. Vermiculite/packing materials is Wet [ ] Dry [✓] na
6. Number of samples in shipping container: 39
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: Heidelberg Date: 1-6-98

Telephoned To: _____ On _____ By _____

00044

BOMLW5

GAMMA-RAY ENERGY ANALYSIS REPORT

Thermo Hanford Inc.
Radiological Counting Facility THI - RCF

Project	300-FF-1 1D Landfill Cleanup		
Customer ID	B0MLW7 Solid		
RCF ID	RCF2552		
	Sample time, date	1115	12/31/97
	Analysis date		1/5/98

Isotope		Activity pCi/gm		2 s err	Ci/gm	
K40		9.1e+00	+/-	2.0e+00	9.1e-12	
Co60	<	2.0e-01			2.0e-13	
I129	<	7.9e+00			7.9e-12	
Cs137	<	1.4e-01			1.4e-13	
Eu152	<	6.6e-01			6.6e-13	
Eu154	<	5.0e-01			5.0e-13	
Eu155	<	5.1e-01			5.1e-13	
Th32dau		4.7e-01	+/-	1.9e-01	4.7e-13	
U235	<	1.0e+00			1.0e-12	
U238	<	1.7e+01			1.7e-11	
U238dau		4.3e-01	+/-	1.8e-01	4.3e-13	
Np237	<	2.5e-01			2.5e-13	
Am241	<	5.8e-01			5.8e-13	
Tot Act Gam (pCi/gm)		1.0e+01		Ci/gm	1.0e-11	
Y/Sr-90	<	N/R				
Gross Alpha	<	1.7e+00			1.7e-12	
Gross Beta		1.5e+01	+/-	3.0e+00	1.5e-11	Reported as 137-Cs Betas.
AEA total	<	N/R				

Total Activity (pCi/gm) 1.5e+01
(Ci/gm) 1.5e-11

Definitions:

All errors reported at 2 standard deviations
A Assigned as residual/loss from Gamma/Beta balance.
For soils and natural samples, the following applies:
The analysis of U238 is based on the activity of Pa234m

The analysis of Np237 is based on the activity of Pa233

U238dau is the activity of Pb214 and Bi214, short lived daughter products of U238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.

Th32dau is the activity of Ac228, Pb212, and Tl208, short lived daughter products of 232Th. Equilibrium between parent and daughter products may not exist in disturbed materials.

Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.

N/R means no result or analysis was requested.

Note! 152-Eu is not a 100% Beta emitter.

Radiological analyst — Date 1-6-98

Albert I. Davis, Radiological Manager — Date 1/6/98

00045

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

Job No. 22192
Witness Surveillance Required: NO
Due Date: N/A
Assessor: N/A
Client CCN: N/A
GEL: 216 B2-2
TEB: N/A
SBA: N/A
Subject Code: 5830

TO: D. A. St John L0-19
C. D. Wittreich H9-06
F. G. Zwiesler X0-23

DATE: December 10, 1997

COPIES: See Below

FROM: S. K. De Mers
RadCon Engineering
X0-23/531-0729

SUBJECT: **USING FIELD READINGS TO DETERMINE SHIPPING REQUIREMENTS FOR SAMPLES IN SUPPORT OF THE 216 B 2-2 VADOSE ZONE INVESTIGATION**

REF: The Health Physics and Radiological Health Handbook

The purpose of this memo is to provide direction in determining using field instruments, when samples taken in support of the 216 B 2-2 vadose zone investigations must be shipped as radioactive material as defined in Department of Transportation requirements.

Radioactive material for shipping purposes is defined by the Department of Transportation as any material that has an activity in excess of 2,000 pCi/gm. For the purpose of conservatism, the demarcation point for determining radioactive material for shipping purposes will be 1,500 pCi/gm. Two separate approaches will be used to validate the use of field instruments to determine activity in soil samples.

The first approach is to use a formula for determining beta exposure rate from solutions of radioactive material contained in the *Health Physics and Radiological Health Handbook*. This formula is 2.12 times the average energy of the beta particle in MEV, times the concentration of the isotope in uCi/gm.

$$2.12 \; X \; E \; X \; C = Rads/hr$$

Where; 2.12 is a conversion factor
E is the average energy of the beta particle (Sr90 = 0.195 MEV, Y90 = 0.935 MEV)
C is the concentration of the isotope in uCi/gm

Inserting the values for Sr/Y90 beta energy and the concentration of 1,500 pCi/gm

$$2.12 \; X \; (0.195 + 0.935) \; X \; 1.5 \; X \; 10^{-3} \; uCi/gm = 0.0036 \; Rads/hr$$

0.0036 RADS/hr is equal to 3.6 mRad/hr. The field instrument has a correction factor of 3 for beta radiation, so the RO-20 (beta/gamma dose rate instrument) would read 1.2 mRad/hr. Field readings taken at the 216 B2-2 trench showed for each 1 mRad/hr as read (uncorrected) on the RO-20, the E-600 ratemeter equipped with an SH-380 plastic scintillator, read 100,000 dpm. Therefore, from the above comparison, a sample with an activity of 1,500 pCi/gm would read 1.2 mRad/hr on the RO-20 and 120,000 dpm on the E-600 equipped with a SH-380 probe.

For the second approach, a soil standard with 300 pCi/gm is used. This soil standard was read with an Electra ratemeter equipped with a DP-6 plastic scintillator that had 30% efficiency for Sr90. The 300 pCi/gm source read 16 cpm per pCi/gm. Multiplying this value by 1,500 pCi/gm would result in a reading on the Electra/DP-6 equipment of 80,000 dpm (using an efficiency of 30%). So for this instrument, 1,500 pCi/gm of Sr90 would read 80,000 dpm.

From this we can gather the 1,500 pCi/gm will range between 80,000 dpm and 120,000 dpm. The RCT and sampler/shipper will verify actual readings in the field using the 300-pCi/gm Sr90 source and logged. The 1,500-pCi/gm value will be used.

SKD:dld

Copies:
R. C. Havenor X0-17
V. J. Rohay H9-02
W. S. Thompson L0-19
RadCon Engineering File/LB X0-23
Document and Info Services H0-09

Quanterra Sample Sets R. Fahkuers
216 B-2-2 Ditch 1-6-98
Boring 8079

Per Demers total activity Calc. Letter

$\left(\frac{\text{cpm soil}}{\text{cpm source}}\right)$ 300 pCi/gm = Sample Activity

assume all Sr-90

BOMJJ7 $\left(\frac{100 \text{ cpm}}{1400 \text{ cpm}}\right)$ 300 pCi/gm = 22 pCi/gm

BOMJK0 $\left(\frac{100 \text{ cpm}}{1400 \text{ cpm}}\right)$ 300 pCi/gm = 22 pCi/gm

Quanterra Environmental Services

BW & WP

013789

Login No.: 16619

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Ashland

Date: 1-8-98 Time: 0845

Project No: 550.257

Initiated by: [illegible]

Shipper/No: Airborne

RFA/COC Numbers: 342

Condition/Variance (Check all that apply):

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

☐ No variances were noted during sample receipt.

Cooler Temperature Upon Receipt: 3°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: for [illegible] Date: 1-8-98

Project Management Review: [illegible] Date: 1/16/98

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

00049

SL-ADMIN-2004, Revised 11/24/95

Quanterra Environmental Services

BW+WS

013765

Login No.: _____

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: _____

Project No: _____

Shipper/No: Airborne

Date: 1-7-98 Time: 0815

Initiated by: 2nd Mittal

RFA/COC Number: no RCH COC B98

Condition/Variance (Check all that apply):

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

☐ No variances were noted during sample receipt.

Cooler Temperature Upon Receipt: 4°C

Notes: _____

Corrective Actions:

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

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

☐ Samples: processed "as is". _____

☐ Samples: on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: for 2nd Mittal Date: 1-7-98

Project Management Review: [signature] Date: 1/16/98

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

00050

W02160

Quanterra January 22, 1998 10:26 am
Account: 10722 Project: 550.257 Quanterra-Richland QAS No. 550.257 Rev. 0
Master Sample Login: 16623

Project Manager: W. Price

Draft: Final Entered and Reviewed by: Sheila Lawrence PM Review: Walt Price

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
16623-001	B0MK96	Water	07-JAN-98 13:30	08-JAN-98 12:55	28-JAN-98	AIRBORNE	3*	R6829-001
Richland ID 80111801 VOA plus 1-Butanol, Diethyl ether as TIC's								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/8260/Q4	S	HCL	01-FEB-98	21-JAN-98	109B	(349641:99 349667:99 349668:99)
0				HCL	!!-&&&-**	!!-&&&-**		

Data:

3*=Sample has not been rad screened.

0001

[redacted]

Chain of Custody Record

TEMP 4°C CUK# 13821 ST LOUIS

Quanterra

NO QC

QUA-4124 0797

Client: Beckett	Project Manager: A. Koprina	Date: 7-9-98	Chain of Custody Number: 00356
Address:	Telephone Number (Area Code)/Fax Number:	Lab Number:	Page 1 of 1
City / State / Zip Code:	Site Contact:	Lab Contact:	
Project Name: SAF B98-003	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

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

Special Instructions/ Conditions of Receipt:

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H_2SO_4	HNO3	HCl	NaOH	ZnAc/NaOH
80111801 BDMR98	all	bottles										

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other _____

QC Requirements (Specify): SDG-002160

	Date	Time		Date	Time
1. Relinquished By: Heidelberg QES	7-9-98	16:00	1. Received By: [signature]	7-10-98	10:00
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

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

00082

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-23	Page 1 of 1

Collector R. Fahlberg/D. St. John	Company Contact Curt Wittreich	Telephone No. 372-9586	Project Coordinator KOERNER, CC
Data Turnaround 45 Days			
Project Designation 216-B-2-2 Ditch - Water	Sampling Location 200 East		SAF No. B98-003
Ice Chest No.	Field Logbook No. EL-1281		Method of Shipment Hand delivered
Shipped To Quanterra Incorporated	Offsite Property No.		Bill of Lading/Air Bill No.

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
Cool 4C

SAMPLE ANALYSIS

80111801 SVG W02160

Preservation	HCl or H2SO4 to pH <2 Cno												
Type of Container	aGs*												
No. of Container(s)	3												
Volume	40ml												
	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)												
Sample No.	Matrix *	Sample Date	Sample Time										
B0MK98	Water	1-7-98	1330	X									
				3x10									

SPECIAL INSTRUCTIONS

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By	Date/Time 1255 1-8-98	Received By	Date/Time 1-8-98 1255
Relinquished By	Date/Time	Received By	Date/Time <1000pm
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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: 1-8-98 1255 SG#: W02160

Work Order Number: 801118 SAF #: B98-004 & B98-003

Shipping Container ID: 96-085 Chain of Custody #: B98-004 & B98-003-2

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°C
5. Vermiculite/packing materials is: Wet [] Dry [] N/A
6. Number of samples in shipping container: 15
7. Sample holding times exceeded? Yes [] No [✓]

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

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

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

Sample Custodian/Laboratory: [signature] Date: 1-8-98

Telephoned To: _____ On _____ By _____

00054

Quanterra Environmental Services

013821

-Blue up

Login No.: _____

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: _____ Date: 1-10-98 Time: 7:00

Project No: 550.257 Initiated by: [illegible]

Shipper No: A/B 5799 716 111 RFA/COC Number: 856

Condition/Variance (Check all that apply):

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

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

Notes: _____

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(s) disposed: _____

Project Manager: _____

METALS

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 01/30/98

Client ID: BOMK84

Quanterra ID : 16616-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162803-1	01/19/98	01/20/98	43.7	UG/L	B	200	1
Antimony	7440-36-0	QCBLK162803-1	01/19/98	01/20/98	42.5	UG/L	U	60.0	1
Arsenic	7440-38-2	QCBLK162803-1	01/19/98	01/20/98	1.3	UG/L	U	10.0	1
Barium	7440-39-3	QCBLK162803-1	01/19/98	01/20/98	0.76	UG/L	B	200	1
Beryllium	7440-41-7	QCBLK162803-1	01/19/98	01/20/98	0.55	UG/L	B	5.0	1
Cadmium	7440-43-9	QCBLK162803-1	01/19/98	01/20/98	3.3	UG/L	U	5.0	1
Calcium	7440-70-2	QCBLK162803-1	01/19/98	01/20/98	125	UG/L	B	5000	1
Chromium	7440-47-3	QCBLK162803-1	01/19/98	01/20/98	2.7	UG/L	U	10.0	1
Cobalt	7440-48-4	QCBLK162803-1	01/19/98	01/20/98	4.3	UG/L	U	50.0	1
Copper	7440-50-8	QCBLK162803-1	01/19/98	01/20/98	9.8	UG/L	B	25.0	1
Iron	7439-89-6	QCBLK162803-1	01/19/98	01/20/98	26.6	UG/L	B	100	1
Lead	7439-92-1	QCBLK162803-1	01/19/98	01/20/98	0.90	UG/L	U	3.0	1
Magnesium	7439-95-4	QCBLK162803-1	01/19/98	01/20/98	79.0	UG/L	B	5000	1
Manganese	7439-96-5	QCBLK162803-1	01/19/98	01/20/98	1.5	UG/L	B	15.0	1
Nickel	7440-02-0	QCBLK162803-1	01/19/98	01/20/98	14.6	UG/L	U	40.0	1
Potassium	7440-09-7	QCBLK162803-1	01/19/98	01/20/98	2180	UG/L	U	5000	1
Selenium	7782-49-2	QCBLK162803-1	01/19/98	01/20/98	2.2	UG/L	U	5.0	1
Silver	7440-22-4	QCBLK162803-1	01/19/98	01/20/98	6.0	UG/L	U	10.0	1
Sodium	7440-23-5	QCBLK162803-1	01/19/98	01/20/98	227	UG/L	B	5000	1
Vanadium	7440-62-2	QCBLK162803-1	01/19/98	01/20/98	5.2	UG/L	B	50.0	1
Zinc	7440-66-6	QCBLK162803-1	01/19/98	01/20/98	5.4	UG/L	B	20.0	1
Bismuth	7440-69-9	QCBLK162803-1	01/19/98	01/19/98	50.4	UG/L	U	200	1
Boron	7440-42-8	QCBLK162803-1	01/19/98	01/20/98	40.3	UG/L	B	200	1
Tin	7440-31-5	QCBLK162803-1	01/19/98	01/20/98	34.8	UG/L	U	100	1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 01/30/98

Client ID: BOMK84

Quanterra ID : 16616-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Antimony	7440-36-0	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Arsenic	7440-38-2	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Barium	7440-39-3	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Beryllium	7440-41-7	QCBLK162803-1	01/19/98	01/20/98	100	%REC			1
Cadmium	7440-43-9	QCBLK162803-1	01/19/98	01/20/98	87	%REC			1
Calcium	7440-70-2	QCBLK162803-1	01/19/98	01/20/98	100	%REC			1
Chromium	7440-47-3	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Cobalt	7440-48-4	QCBLK162803-1	01/19/98	01/20/98	95	%REC			1
Copper	7440-50-8	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Iron	7439-89-6	QCBLK162803-1	01/19/98	01/20/98	101	%REC			1
Lead	7439-92-1	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Magnesium	7439-95-4	QCBLK162803-1	01/19/98	01/20/98	101	%REC			1
Manganese	7439-96-5	QCBLK162803-1	01/19/98	01/20/98	95	%REC			1
Nickel	7440-02-0	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Potassium	7440-09-7	QCBLK162803-1	01/19/98	01/20/98	101	%REC			1
Selenium	7782-49-2	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Silver	7440-22-4	QCBLK162803-1	01/19/98	01/20/98	86	%REC			1
Sodium	7440-23-5	QCBLK162803-1	01/19/98	01/20/98	96	%REC			1
Vanadium	7440-62-2	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Zinc	7440-66-6	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Bismuth	7440-69-9	QCBLK162803-1	01/19/98	01/19/98	100	%REC			1
Boron	7440-42-8	QCBLK162803-1	01/19/98	01/20/98	96	%REC			1
Tin	7440-31-5	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 01/30/98

Client ID: BOMK84

Quanterra ID : 16616-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Antimony	7440-36-0	QCBLK162803-1	01/19/98	01/20/98	100	%REC			1
Arsenic	7440-38-2	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Barium	7440-39-3	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Beryllium	7440-41-7	QCBLK162803-1	01/19/98	01/20/98	100	%REC			1
Cadmium	7440-43-9	QCBLK162803-1	01/19/98	01/20/98	96	%REC			1
Calcium	7440-70-2	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Chromium	7440-47-3	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Cobalt	7440-48-4	QCBLK162803-1	01/19/98	01/20/98	95	%REC			1
Copper	7440-50-8	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Iron	7439-89-6	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Lead	7439-92-1	QCBLK162803-1	01/19/98	01/20/98	94	%REC			1
Magnesium	7439-95-4	QCBLK162803-1	01/19/98	01/20/98	101	%REC			1
Manganese	7439-96-5	QCBLK162803-1	01/19/98	01/20/98	95	%REC			1
Nickel	7440-02-0	QCBLK162803-1	01/19/98	01/20/98	96	%REC			1
Potassium	7440-09-7	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Selenium	7782-49-2	QCBLK162803-1	01/19/98	01/20/98	95	%REC			1
Silver	7440-22-4	QCBLK162803-1	01/19/98	01/20/98	87	%REC			1
Sodium	7440-23-5	QCBLK162803-1	01/19/98	01/20/98	96	%REC			1
Vanadium	7440-62-2	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Zinc	7440-66-6	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Bismuth	7440-69-9	QCBLK162803-1	01/19/98	01/19/98	100	%REC			1
Boron	7440-42-8	QCBLK162803-1	01/19/98	01/20/98	100	%REC			1
Tin	7440-31-5	QCBLK162803-1	01/19/98	01/20/98	101	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 01/30/98

Client ID: B0MK85

Quanterra ID : 16616-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162803-1	01/19/98	01/20/98	33.1	UG/L	B	200	1
Antimony	7440-36-0	QCBLK162803-1	01/19/98	01/20/98	42.5	UG/L	U	60.0	1
Arsenic	7440-38-2	QCBLK162803-1	01/19/98	01/20/98	1.3	UG/L	U	10.0	1
Barium	7440-39-3	QCBLK162803-1	01/19/98	01/20/98	0.76	UG/L	B	200	1
Beryllium	7440-41-7	QCBLK162803-1	01/19/98	01/20/98	0.49	UG/L	B	5.0	1
Cadmium	7440-43-9	QCBLK162803-1	01/19/98	01/20/98	3.3	UG/L	U	5.0	1
Calcium	7440-70-2	QCBLK162803-1	01/19/98	01/20/98	118	UG/L	B	5000	1
Chromium	7440-47-3	QCBLK162803-1	01/19/98	01/20/98	2.7	UG/L	U	10.0	1
Cobalt	7440-48-4	QCBLK162803-1	01/19/98	01/20/98	4.3	UG/L	U	50.0	1
Copper	7440-50-8	QCBLK162803-1	01/19/98	01/20/98	7.9	UG/L	B	25.0	1
Iron	7439-89-6	QCBLK162803-1	01/19/98	01/20/98	46.2	UG/L	B	100	1
Lead	7439-92-1	QCBLK162803-1	01/19/98	01/20/98	0.90	UG/L	U	3.0	1
Magnesium	7439-95-4	QCBLK162803-1	01/19/98	01/20/98	77.8	UG/L	B	5000	1
Manganese	7439-96-5	QCBLK162803-1	01/19/98	01/20/98	1.7	UG/L	B	15.0	1
Nickel	7440-02-0	QCBLK162803-1	01/19/98	01/20/98	14.6	UG/L	U	40.0	1
Potassium	7440-09-7	QCBLK162803-1	01/19/98	01/20/98	2180	UG/L	U	5000	1
Selenium	7782-49-2	QCBLK162803-1	01/19/98	01/20/98	2.2	UG/L	U	5.0	1
Silver	7440-22-4	QCBLK162803-1	01/19/98	01/20/98	6.0	UG/L	U	10.0	1
Sodium	7440-23-5	QCBLK162803-1	01/19/98	01/20/98	344	UG/L	B	5000	1
Vanadium	7440-62-2	QCBLK162803-1	01/19/98	01/20/98	4.9	UG/L	B	50.0	1
Zinc	7440-66-6	QCBLK162803-1	01/19/98	01/20/98	4.2	UG/L	B	20.0	1
Bismuth	7440-69-9	QCBLK162803-1	01/19/98	01/19/98	50.4	UG/L	U	200	1
Boron	7440-42-8	QCBLK162803-1	01/19/98	01/20/98	62.8	UG/L	B	200	1
Tin	7440-31-5	QCBLK162803-1	01/19/98	01/20/98	34.8	UG/L	U	100	1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : NA
Receipt Date : NA
Report Date : 02/04/98

Client ID: NA

Quanterra ID : QCBLK162803-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162803-1	01/19/98	01/20/98	87.5	UG/L	B	200	1
Antimony	7440-36-0	QCBLK162803-1	01/19/98	01/20/98	42.5	UG/L	U	60.0	1
Arsenic	7440-38-2	QCBLK162803-1	01/19/98	01/20/98	-2.0	UG/L	B	10.0	1
Barium	7440-39-3	QCBLK162803-1	01/19/98	01/20/98	1.0	UG/L	B	200	1
Beryllium	7440-41-7	QCBLK162803-1	01/19/98	01/20/98	0.54	UG/L	B	5.0	1
Cadmium	7440-43-9	QCBLK162803-1	01/19/98	01/20/98	3.3	UG/L	U	5.0	1
Calcium	7440-70-2	QCBLK162803-1	01/19/98	01/20/98	130	UG/L	B	5000	1
Chromium	7440-47-3	QCBLK162803-1	01/19/98	01/20/98	2.7	UG/L	U	10.0	1
Cobalt	7440-48-4	QCBLK162803-1	01/19/98	01/20/98	-5.0	UG/L	B	50.0	1
Copper	7440-50-8	QCBLK162803-1	01/19/98	01/20/98	39.7	UG/L		25.0	1
Iron	7439-89-6	QCBLK162803-1	01/19/98	01/20/98	68.6	UG/L	B	100	1
Lead	7439-92-1	QCBLK162803-1	01/19/98	01/20/98	0.90	UG/L	U	3.0	1
Magnesium	7439-95-4	QCBLK162803-1	01/19/98	01/20/98	207	UG/L	B	5000	1
Manganese	7439-96-5	QCBLK162803-1	01/19/98	01/20/98	2.1	UG/L	B	15.0	1
Nickel	7440-02-0	QCBLK162803-1	01/19/98	01/20/98	14.6	UG/L	U	40.0	1
Potassium	7440-09-7	QCBLK162803-1	01/19/98	01/20/98	2180	UG/L	U	5000	1
Selenium	7782-49-2	QCBLK162803-1	01/19/98	01/20/98	2.2	UG/L	U	5.0	1
Silver	7440-22-4	QCBLK162803-1	01/19/98	01/20/98	6.0	UG/L	U	10.0	1
Sodium	7440-23-5	QCBLK162803-1	01/19/98	01/20/98	163	UG/L	B	5000	1
Vanadium	7440-62-2	QCBLK162803-1	01/19/98	01/20/98	8.1	UG/L	B	50.0	1
Zinc	7440-66-6	QCBLK162803-1	01/19/98	01/20/98	3.2	UG/L	B	20.0	1
Bismuth	7440-69-9	QCBLK162803-1	01/19/98	01/19/98	50.4	UG/L	U	200	1
Boron	7440-42-8	QCBLK162803-1	01/19/98	01/20/98	20.0	UG/L	U	200	1
Tin	7440-31-5	QCBLK162803-1	01/19/98	01/20/98	-48.8	UG/L	B	100	1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: ICAP Metals
Method: EPA 6010
Matrix: LIQUID

Sample Date : NA
Receipt Date : NA
Report Date : 01/30/98

Client ID: NA

Quanterra ID : QCLCS162803-1

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK162803-1	01/19/98	01/20/98	114	%REC			1
Antimony	7440-36-0	QCBLK162803-1	01/19/98	01/20/98	104	%REC			1
Arsenic	7440-38-2	QCBLK162803-1	01/19/98	01/20/98	102	%REC			1
Barium	7440-39-3	QCBLK162803-1	01/19/98	01/20/98	93	%REC			1
Beryllium	7440-41-7	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Cadmium	7440-43-9	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Calcium	7440-70-2	QCBLK162803-1	01/19/98	01/20/98	102	%REC			1
Chromium	7440-47-3	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Cobalt	7440-48-4	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Copper	7440-50-8	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Iron	7439-89-6	QCBLK162803-1	01/19/98	01/20/98	104	%REC			1
Lead	7439-92-1	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Magnesium	7439-95-4	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Manganese	7439-96-5	QCBLK162803-1	01/19/98	01/20/98	96	%REC			1
Nickel	7440-02-0	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Potassium	7440-09-7	QCBLK162803-1	01/19/98	01/20/98	104	%REC			1
Selenium	7782-49-2	QCBLK162803-1	01/19/98	01/20/98	97	%REC			1
Silver	7440-22-4	QCBLK162803-1	01/19/98	01/20/98	77	%REC			1
Sodium	7440-23-5	QCBLK162803-1	01/19/98	01/20/98	104	%REC			1
Vanadium	7440-62-2	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Zinc	7440-66-6	QCBLK162803-1	01/19/98	01/20/98	99	%REC			1
Bismuth	7440-69-9	QCBLK162803-1	01/19/98	01/19/98	95	%REC			1
Boron	7440-42-8	QCBLK162803-1	01/19/98	01/20/98	98	%REC			1
Tin	7440-31-5	QCBLK162803-1	01/19/98	01/20/98	106	%REC			1

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA_MO_____ Contract: 550.257___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W02160_____

SOW No.: SW846

EPA Sample No.	Lab Sample ID
B0MK84	16616-001
B0MK84SD	16616-001SD
B0MK84S	16616-001S
B0MK85	16616-002

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: _____

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0MK84

Lab Name: QUANTERRA_MO Contract: 550.257
Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160
Matrix (soil/water): WATER Lab Sample ID: 16616-001
Level (low/med): LOW Date Received: 01/02/98
% 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	43.7	B		P
7440-36-0	Antimony	42.5	U		P
7440-38-2	Arsenic	1.3	U		P
7440-39-3	Barium	0.76	B		P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium	3.3	U		P
7440-70-2	Calcium	125	B		P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	4.3	U		P
7440-50-8	Copper	9.8	B		P
7439-89-6	Iron	26.6	B		P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	79.0	B		P
7439-96-5	Manganese	1.5	B		P
7440-02-0	Nickel	14.6	U		P
7440-09-7	Potassium	2180	U		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	6.0	U		P
7440-23-5	Sodium	227	B		P
7440-62-2	Vanadium	5.2	B		P
7440-66-6	Zinc	5.4	B		P
7440-69-9	Bismuth	50.4	U		P
7440-42-8	Boron	40.3	B		P
7440-31-5	Tin	34.8	U		P

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

Comments:

FORM I - IN

SW-846

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0MK85

Lab Name: QUANTERRA_MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix (soil/water): WATER Lab Sample ID: 16616-002

Level (low/med): LOW Date Received: 01/02/98

% 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	33.1	B		P
7440-36-0	Antimony	42.5	U		P
7440-38-2	Arsenic	1.3	U		P
7440-39-3	Barium	0.76	B		P
7440-41-7	Beryllium	0.49	B		P
7440-43-9	Cadmium	3.3	U		P
7440-70-2	Calcium	118	B		P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	4.3	U		P
7440-50-8	Copper	7.9	B		P
7439-89-6	Iron	46.2	B		P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	77.8	B		P
7439-96-5	Manganese	1.7	B		P
7440-02-0	Nickel	14.6	U		P
7440-09-7	Potassium	2180	U		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	6.0	U		P
7440-23-5	Sodium	344	B		P
7440-62-2	Vanadium	4.9	B		P
7440-66-6	Zinc	4.2	B		P
7440-69-9	Bismuth	50.4	U		P
7440-42-8	Boron	62.8	B		P
7440-31-5	Tin	34.8	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

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3
BLANKS

Lab Name: QUANTERRA_MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	31.3	U	31.3	U	31.3	U			87.500	B	P
Antimony	42.5	U	42.5	U	42.5	U			42.500	U	P
Arsenic	1.3	U	-2.5	B	-2.0	B			-2.040	B	P
Barium	1.0	B	1.5	B	1.8	B			1.010	B	P
Beryllium	1.0	B	1.0	B	1.0	B			0.540	B	P
Cadmium	3.3	U	3.3	U	3.3	U			3.300	U	P
Calcium	15.9	U	25.3	B	41.0	B			129.540	B	P
Chromium	2.7	U	2.7	U	2.7	U			2.700	U	P
Cobalt	4.3	U	4.3	U	4.3	U			-5.040	B	P
Copper	4.1	U	4.9	B	4.1	U			39.680		P
Iron	13.6	B	16.2	B	24.5	B			68.630	B	P
Lead	1.1	B	0.9	U	1.5	B			0.900	U	P
Magnesium	87.6	B	134.6	B	146.0	B			206.610	B	P
Manganese	1.8	B	2.3	B	2.4	B			2.090	B	P
Nickel	14.6	U	14.6	U	14.6	U			14.600	U	P
Potassium	2180.0	U	2746.7	B	2180.0	U			2180.000	U	P
Selenium	2.2	U	2.2	U	2.2	U			2.200	U	P
Silver	6.0	U	6.0	U	6.0	U			6.000	U	P
Sodium	67.4	B	124.9	B	157.2	B			162.620	B	P
Vanadium	5.1	B	7.2	B	9.4	B			8.140	B	P
Zinc	2.9	B	2.3	U	2.3	U			3.240	B	P
Bismuth	50.4	U	50.4	U	50.4	U			50.400	U	P
Boron	20.0	U	20.0	U	20.0	U			20.000	U	P
Tin	-57.4	B	-45.9	B	-51.6	B			-48.770	B	P

FORM III - IN

SW-846

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B0MK84S

Lab Name: QUANTERRA_MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	80-120	1986.6100		43.7200	B	2000.00	97.1		P
Antimony	80-120	497.2500		42.5000	U	500.00	99.4		P
Arsenic	80-120	1979.3900		1.3000	U	2000.00	99.0		P
Barium	80-120	1890.8500		0.7600	B	2000.00	94.5		P
Beryllium	80-120	50.6200		0.5500	B	50.00	100.1		P
Cadmium	80-120	43.3000		3.3000	U	50.00	86.6		P
Calcium	80-120	49945.0500		125.3400	B	50000.00	99.6		P
Chromium	80-120	188.2700		2.7000	U	200.00	94.1		P
Cobalt	80-120	476.4600		4.3000	U	500.00	95.3		P
Copper	80-120	254.2900		9.7900	B	250.00	97.8		P
Iron	80-120	1036.3600		26.5800	B	1000.00	101.0		P
Lead	80-120	471.1200		0.9000	U	500.00	94.2		P
Magnesium	80-120	50747.5600		78.9500	B	50000.00	101.3		P
Manganese	80-120	476.1100		1.4800	B	500.00	94.9		P
Nickel	80-120	482.8000		14.6000	U	500.00	96.6		P
Potassium	80-120	50307.9700		2180.0000	U	50000.00	100.6		P
Selenium	80-120	1890.5500		2.2000	U	2000.00	94.5		P
Silver	80-120	43.2200		6.0000	U	50.00	86.4		P
Sodium	80-120	48410.9200		227.3500	B	50000.00	96.4		P
Vanadium	80-120	494.4700		5.1800	B	500.00	97.9		P
Zinc	80-120	492.6500		5.4400	B	500.00	97.4		P
Bismuth	80-120	2000.1500		50.4000	U	2000.00	100.0		P
Boron	80-120	996.1900		40.3300	B	1000.00	95.6		P
Tin	80-120	1978.9200		34.8000	U	2000.00	98.9		P

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B0MK84SD

Lab Name: QUANTERRA_MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	80-120	2004.3500		43.7200	B	2000.00	98.0		P
Antimony	80-120	501.9400		42.5000	U	500.00	100.4		P
Arsenic	80-120	1988.6000		1.3000	U	2000.00	99.4		P
Barium	80-120	1881.6600		0.7600	B	2000.00	94.0		P
Beryllium	80-120	50.3900		0.5500	B	50.00	99.7		P
Cadmium	80-120	47.8600		3.3000	U	50.00	95.7		P
Calcium	80-120	49825.4800		125.3400	B	50000.00	99.4		P
Chromium	80-120	188.4400		2.7000	U	200.00	94.2		P
Cobalt	80-120	475.7200		4.3000	U	500.00	95.1		P
Copper	80-120	253.9200		9.7900	B	250.00	97.7		P
Iron	80-120	1020.9300		26.5800	B	1000.00	99.4		P
Lead	80-120	471.9300		0.9000	U	500.00	94.4		P
Magnesium	80-120	50504.0700		78.9500	B	50000.00	100.9		P
Manganese	80-120	474.8300		1.4800	B	500.00	94.7		P
Nickel	80-120	479.7500		14.6000	U	500.00	96.0		P
Potassium	80-120	48448.4600		2180.0000	U	50000.00	96.9		P
Selenium	80-120	1892.9400		2.2000	U	2000.00	94.6		P
Silver	80-120	43.3300		6.0000	U	50.00	86.7		P
Sodium	80-120	48167.3800		227.3500	B	50000.00	95.9		P
Vanadium	80-120	491.9300		5.1800	B	500.00	97.4		P
Zinc	80-120	491.9600		5.4400	B	500.00	97.3		P
Bismuth	80-120	1995.0000		50.4000	U	2000.00	99.8		P
Boron	80-120	1042.4400		40.3300	B	1000.00	100.2		P
Tin	80-120	2013.3100		34.8000	U	2000.00	100.7		P

Comments:

U.S. EPA - CLP

6A
MATRIX SPIKE DUPLICATES

EPA SAMPLE NO.

B0MK84S

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix (soil/water): WATER Level (low/med): LOW

% Solids: 0.0

Percent recoveries:

Analyte	Control Limit	Matrix Spike (S)		Matrix Spike Duplicate (SD)		RPD	Q	M
Al	20%	97.10		98.00		0.9		P
Sb	20%	99.40		100.40		1.0		P
As	20%	99.00		99.40		0.4		P
Ba	20%	94.50		94.00		0.5		P
Be	20%	100.10		99.70		0.4		P
Cd	20%	86.60		95.70		10.0		P
Ca	20%	99.60		99.40		0.2		P
Cr	20%	94.10		94.20		0.1		P
Co	20%	95.30		95.10		0.2		P
Cu	20%	97.80		97.70		0.1		P
Fe	20%	101.00		99.40		1.6		P
Pb	20%	94.20		94.40		0.2		P
Mg	20%	101.30		100.90		0.4		P
Mn	20%	94.90		94.70		0.2		P
Ni	20%	96.60		96.00		0.6		P
K	20%	100.60		96.90		3.7		P
Se	20%	94.50		94.60		0.1		P
Ag	20%	86.40		86.70		0.3		P
Na	20%	96.40		95.90		0.5		P
V	20%	97.90		97.40		0.5		P
Zn	20%	97.40		97.30		0.1		P
Bi	20%	100.00		99.80		0.2		P
B	20%	95.60		100.20		4.7		P
Sn	20%	98.90		100.70		1.8		P

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7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA_MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Solid LCS Source:

Aqueous LCS Source: SOL+/CHEMPUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	1000.0	1139.17	113.9						
Antimony	1000.0	1038.64	103.9						
Arsenic	1000.0	1018.03	101.8						
Barium	1000.0	926.69	92.7						
Beryllium	1000.0	987.32	98.7						
Cadmium	1000.0	991.27	99.1						
Calcium	20000.0	20494.01	102.5						
Chromium	1000.0	989.29	98.9						
Cobalt	1000.0	974.45	97.4						
Copper	1000.0	980.98	98.1						
Iron	1000.0	1039.25	103.9						
Lead	1000.0	980.19	98.0						
Magnesium	20000.0	19676.86	98.4						
Manganese	1000.0	964.91	96.5						
Nickel	1000.0	992.83	99.3						
Potassium	20000.0	20711.18	103.6						
Selenium	1000.0	968.79	96.9						
Silver	250.0	191.40	76.6						
Sodium	20000.0	20755.49	103.8						
Vanadium	1000.0	984.31	98.4						
Zinc	1000.0	989.07	98.9						
Bismuth	2000.0	1891.67	94.6						
Boron	2000.0	1969.37	98.5						
Tin	2000.0	2113.57	105.7						

FORM VII - IN

SW-846

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOMK88

Sample Date : 01/02/98
Receipt Date : 01/05/98
Report Date : 02/04/98

Quanterra ID : 16618-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162334-1	01/13/98	01/13/98	2	UG/L	J	5	1
Acetone	67-64-1	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK162334-1	01/13/98	01/13/98	8	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162334-1	01/13/98	01/13/98	97	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162334-1	01/13/98	01/13/98	88	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162334-1	01/13/98	01/13/98	110	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 01/03/98
Receipt Date : 01/05/98
Report Date : 02/04/98

Client ID: BOMK89

Quanterra ID : 16618-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162334-1	01/13/98	01/13/98	2	UG/L	J	5	1
Acetone	67-64-1	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropene	78-87-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162334-1	01/13/98	01/13/98	100	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162334-1	01/13/98	01/13/98	89	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162334-1	01/13/98	01/13/98	115	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 01/05/98
Receipt Date : 01/06/98
Report Date : 02/04/98

Client ID: 80MK96

Quanterra ID : 16619-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162334-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162334-1	01/13/98	01/13/98	2	UG/L	J	5	1
Acetone	67-64-1	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162334-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162334-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene-d8	2037-26-5	QCBLK162334-1	01/13/98	01/13/98	99	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162334-1	01/13/98	01/13/98	86	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162334-1	01/13/98	01/13/98	115	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Client ID: BOMK84

Quanterra ID : 16616-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162140-1	01/09/98	01/09/98	6	UG/L	B	5	1
Acetone	67-64-1	QCBLK162140-1	01/09/98	01/09/98	9	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Silanol, trimethyl-	1066-40-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	101	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	83	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	106	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOMK84

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	117	%REC			1
Trichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	97	%REC			1
Benzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	105	%REC			1
Toluene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	98	%REC			1
Chlorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	98	%REC			1
Toluene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	103	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	85	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	106	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: B0MK84

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
1,1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	120	%REC			1
Trichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	100	%REC			1
Benzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	110	%REC			1
Toluene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	98	%REC			1
Chlorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	96	%REC			1
Toluene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	100	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	84	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	106	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Client ID: BOMK85

Quanterra ID : 16616-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162140-1	01/09/98	01/09/98	6	UG/L	B	5	1
Acetone	67-64-1	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162140-1	01/09/98	01/09/98	12	UG/L		5	1
Toluene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162140-1	01/09/98	01/09/98	9	UG/L		5	1
Styrene	100-42-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162140-1	01/09/98	01/09/98	82	UG/L		5	1
Unknown-1	TIC-32	QCBLK162140-1	01/09/98	01/09/98	18	UG/L	J		1
n-Propylbenzene	103-65-1	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	JN		1
Benzene, 1-ethyl-3-methyl-	620-14-4	QCBLK162140-1	01/09/98	01/09/98	31	UG/L	JN		1
Benzene, 1-ethyl-2-methyl-	611-14-3	QCBLK162140-1	01/09/98	01/09/98	7	UG/L	JN		1
1,2,4-Trimethylbenzene	95-63-6	QCBLK162140-1	01/09/98	01/09/98	188	UG/L	JN		1
Unknown-2	TIC-33	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	J		1
Dodecane	112-40-3	QCBLK162140-1	01/09/98	01/09/98	7	UG/L	JN		1
Naphthalene	91-20-3	QCBLK162140-1	01/09/98	01/09/98	116	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	105	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	86	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	109	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: B0MK76

Sample Date : 12/29/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-003

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	B	5	1
Acetone	67-64-1	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162140-1	01/09/98	01/09/98	12	UG/L		5	1
Benzene, 1-ethyl-3-methyl-	620-14-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	JN		1
1,2,4-Trimethylbenzene	95-63-6	QCBLK162140-1	01/09/98	01/09/98	33	UG/L	JN		1
Naphthalene	91-20-3	QCBLK162140-1	01/09/98	01/09/98	16	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	107	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	86	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	112	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOWK77

Sample Date : 12/29/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-004

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162140-1	01/09/98	01/09/98	9	UG/L	B	5	1
Acetone	67-64-1	QCBLK162140-1	01/09/98	01/09/98	46	UG/L	B	20	1
Carbon Disulfide	75-15-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Perfluoro(methylcyclohexane)	355-02-2	QCBLK162140-1	01/09/98	01/09/98	7	UG/L	JN		1
Unknown-1	TIC-32	QCBLK162140-1	01/09/98	01/09/98	19	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	108	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	88	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	114	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/30/97
Receipt Date : 01/02/98
Report Date : 02/04/98

ient ID: BOMK78

Quanterra ID : 16616-005

alyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
loromethane	74-87-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
omomethane	74-83-9	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
nyl Chloride	75-01-4	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
loroethane	75-00-3	QCBLK162140-1	01/09/98	01/09/98	10	UG/L	U	10	1
thylene Chloride	75-09-2	QCBLK162140-1	01/09/98	01/09/98	7	UG/L	B	5	1
etone	67-64-1	QCBLK162140-1	01/09/98	01/09/98	43	UG/L	B	20	1
rbon Disulfide	75-15-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1-Dichloroethene	75-35-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1-Dichloroethane	75-34-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Dichloroethene (total)	540-59-0	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
loroform	67-66-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Dichloroethane	107-06-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Butanone (MEK)	78-93-3	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
1,1-Trichloroethane	71-55-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
rbon Tetrachloride	56-23-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
omodichloromethane	75-27-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
2-Dichloropropane	78-87-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
s-1,3-Dichloropropene	10061-01-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
ichloroethene	79-01-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
bromochloromethane	124-48-1	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2-Trichloroethane	79-00-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
nzene	71-43-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
ans-1,3-Dichloropropene	10061-02-6	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
omoform	75-25-2	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
Hexanone	591-78-6	QCBLK162140-1	01/09/98	01/09/98	20	UG/L	U	20	1
trachloroethene	127-18-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
1,2,2-Tetrachloroethane	79-34-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
luene	108-88-3	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
lorobenzene	108-90-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
hylBenzene	100-41-4	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
yrene	100-42-5	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
lene (total)	1330-20-7	QCBLK162140-1	01/09/98	01/09/98	5	UG/L	U	5	1
luene-d8	2037-26-5	QCBLK162140-1	01/09/98	01/09/98	102	%REC			1
omofluorobenzene	460-00-4	QCBLK162140-1	01/09/98	01/09/98	84	%REC			1
bromofluoromethane	1868-53-7	QCBLK162140-1	01/09/98	01/09/98	114	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOMK95

Sample Date : 01/05/98
Receipt Date : 01/06/98
Report Date : 02/04/98

Quanterra ID : 16619-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK162632-1	01/14/98	01/14/98	6	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162632-1	01/14/98	01/14/98	94	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162632-1	01/14/98	01/14/98	84	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162632-1	01/14/98	01/14/98	107	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOMK98

Sample Date : 01/07/98
Receipt Date : 01/08/98
Report Date : 02/04/98

Quanterra ID : 16623-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162632-1	01/14/98	01/14/98	10	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162632-1	01/14/98	01/14/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162632-1	01/14/98	01/14/98	3	UG/L	J	5	1
Benzenesulfonic acid, hydrazid	80-17-1	QCBLK162632-1	01/14/98	01/14/98	5	UG/L	JN		1
Silane, methoxytrimethyl-	1825-61-2	QCBLK162632-1	01/14/98	01/14/98	11	UG/L	JN		1
Silanol, trimethyl-	1066-40-6	QCBLK162632-1	01/14/98	01/14/98	35	UG/L	JN		1
1,2,4-Trimethylbenzene	95-63-6	QCBLK162632-1	01/14/98	01/14/98	6	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162632-1	01/14/98	01/14/98	96	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162632-1	01/14/98	01/14/98	85	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162632-1	01/14/98	01/14/98	104	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOMK79

Sample Date : 12/30/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-006

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Toluene-d8	2037-26-5	QCBLK162220-1	01/12/98	01/12/98	104	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/12/98	01/12/98	89	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/12/98	01/12/98	108	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/05/98

Client ID: BOMK81

Quanterra ID : 16616-007

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/12/98	01/12/98	1	UG/L	J	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/12/98	01/12/98	1	UG/L	J	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK162220-1	01/12/98	01/12/98	15	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162220-1	01/12/98	01/12/98	101	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/12/98	01/12/98	88	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/12/98	01/12/98	101	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOMK82

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-008

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/12/98	01/12/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/12/98	01/12/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/12/98	01/12/98	5	UG/L	U	5	1
Toluene-d8	2037-26-5	QCBLK162220-1	01/12/98	01/12/98	104	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/12/98	01/12/98	89	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/12/98	01/12/98	104	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Client ID: BOMK83

Quanterra ID : 16616-009

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/13/98	01/13/98	3	UG/L	J	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK162220-1	01/13/98	01/13/98	6	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162220-1	01/13/98	01/13/98	99	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/13/98	01/13/98	87	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/13/98	01/13/98	104	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/30/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Client ID: B0MK86

Quanterra ID : 16616-010

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/13/98	01/13/98	9	UG/L	BJ	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Silane, methoxytrimethyl-	1825-61-2	QCBLK162220-1	01/13/98	01/13/98	9	UG/L	JN		1
Silanol, trimethyl-	1066-40-6	QCBLK162220-1	01/13/98	01/13/98	30	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162220-1	01/13/98	01/13/98	104	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/13/98	01/13/98	90	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/13/98	01/13/98	109	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/30/97
Receipt Date : 01/02/98
Report Date : 02/05/98

Client ID: BOMK87

Quanterra ID : 16616-011

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Unknown-1	TIC-32	QCBLK162220-1	01/13/98	01/13/98	14	UG/L	J		1
Toluene-d8	2037-26-5	QCBLK162220-1	01/13/98	01/13/98	100	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/13/98	01/13/98	88	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/13/98	01/13/98	106	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/05/98

Client ID: BOMK93

Quanterra ID : 16616-012

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropane	78-87-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/13/98	01/13/98	3	UG/L	J	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/13/98	01/13/98	2	UG/L	J	5	1
Styrene	100-42-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/13/98	01/13/98	18	UG/L		5	1
Unknown-1	TIC-32	QCBLK162220-1	01/13/98	01/13/98	16	UG/L	J		1
Benzene, 1-ethyl-3-methyl-	620-14-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	JN		1
1,2,4-Trimethylbenzene	95-63-6	QCBLK162220-1	01/13/98	01/13/98	24	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162220-1	01/13/98	01/13/98	106	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/13/98	01/13/98	90	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/13/98	01/13/98	113	%REC			1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

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

Client ID: BOWK94

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-013

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Chloromethane	74-87-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Bromomethane	74-83-9	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Vinyl Chloride	75-01-4	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Chloroethane	75-00-3	QCBLK162220-1	01/13/98	01/13/98	10	UG/L	U	10	1
Methylene Chloride	75-09-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Acetone	67-64-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Carbon Disulfide	75-15-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethene	75-35-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1-Dichloroethane	75-34-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethene (total)	540-59-0	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chloroform	67-66-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloroethane	107-06-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
2-Butanone (MEK)	78-93-3	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
1,1,1-Trichloroethane	71-55-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Carbon Tetrachloride	56-23-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromodichloromethane	75-27-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,2-Dichloropropene	78-87-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
cis-1,3-Dichloropropene	10061-01-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Trichloroethene	79-01-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Dibromochloromethane	124-48-1	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2-Trichloroethane	79-00-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Benzene	71-43-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
trans-1,3-Dichloropropene	10061-02-6	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Bromoform	75-25-2	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
4-Methyl-2-Pentanone (MIBK)	108-10-1	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
2-Hexanone	591-78-6	QCBLK162220-1	01/13/98	01/13/98	20	UG/L	U	20	1
Tetrachloroethene	127-18-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
1,1,2,2-Tetrachloroethane	79-34-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Toluene	108-88-3	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Chlorobenzene	108-90-7	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
EthylBenzene	100-41-4	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Styrene	100-42-5	QCBLK162220-1	01/13/98	01/13/98	5	UG/L	U	5	1
Xylene (total)	1330-20-7	QCBLK162220-1	01/13/98	01/13/98	6	UG/L		5	1
Unknown-1	TIC-32	QCBLK162220-1	01/13/98	01/13/98	15	UG/L	J		1
1,2,4-Trimethylbenzene	95-63-6	QCBLK162220-1	01/13/98	01/13/98	14	UG/L	JN		1
Toluene-d8	2037-26-5	QCBLK162220-1	01/13/98	01/13/98	102	%REC			1
Bromofluorobenzene	460-00-4	QCBLK162220-1	01/13/98	01/13/98	87	%REC			1
Dibromofluoromethane	1868-53-7	QCBLK162220-1	01/13/98	01/13/98	109	%REC			1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK84

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0485

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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	6	B
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)	5	U
67-66-3	Chloroform	5	U
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	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

iE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOMK84

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0485

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 1066-40-6	Silanol, trimethyl-	4.303	5	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK85

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0488

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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	6	B
67-64-1	Acetone	10	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	5	U
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	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	12	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	9	
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	82	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOMK85

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0488

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.118	18	J
2. 103-65-1	Benzene, propyl-	20.282	5	NJ
3. 620-14-4	Benzene, 1-ethyl-3-methyl-	20.613	31	NJ
4. 611-14-3	Benzene, 1-ethyl-2-methyl-	21.432	7	NJ
5. 95-63-6	Benzene, 1,2,4-trimethyl-	21.729	188	NJ
6.	Unknown	22.774	20	J
7. 112-40-3	Dodecane	23.907	7	NJ
8. 91-20-3	Naphthalene	24.831	116	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK76

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0489

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	B
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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)	12	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOMK76

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0489

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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. 620-14-4	Benzene, 1-ethyl-3-methyl-	20.595	5	NJ
2. 95-36-3	1,2,4-Trimethylbenzene	21.728	33	NJ
3. 91-20-3	Naphthalene	24.831	16	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK77

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0490

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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	9	B
67-64-1	Acetone	46	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK77

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0490

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 355-02-2	Perfluoro(methylcyclohexane)	1.594	7	NJ
2.	Unknown	2.239	19	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK78

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0491

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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	7	B
67-64-1	Acetone	43	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK78

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0491

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/09/98

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
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK79

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0508

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/12/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	5	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	5	U
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	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.

BOMK79

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0508

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/12/98

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
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK81

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-007

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0511

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/12/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	1	J
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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	1	J
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.

BOMK81

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-007

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0511

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/12/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.154	15	J
2.				
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK82

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0514

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/12/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK82

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0514

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/12/98

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
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK83

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0515

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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	3	J
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.

BOMK83

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0515

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	1.961	6	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK86

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-010

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0516

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
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)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK86

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-010

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0516

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 1825-61-2	Silane, methoxytrimethyl-	3.687	9	NJ
2. 1066-40-6	Silanol, trimethyl-	4.280	30	NJ
3.				
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK87

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-011

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0517

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK87

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-011

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0517

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.101	14	J
2.				
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK93

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-012

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0518

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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	3	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	18	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOMK93

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-012

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0518

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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	2.194	16	J
2. 620-14-4	Benzene, 1-ethyl-3-methyl-	20.549	5	NJ
3. 95-63-6	Benzene, 1,2,4-trimethyl-	21.682	24	NJ
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK94

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-013

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0519

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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)	6	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOMK94

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16616-013

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0519

Level: (low/med) LOW Date Received: 01/02/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.175	15	J
2. 95-63-6	Benzene, 1,2,4-trimethyl-	21.681	14	NJ
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK88

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16618-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ELCS0535

Level: (low/med) LOW Date Received: 01/05/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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	2	J
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK88

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16618-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ELCS0535

Level: (low/med) LOW Date Received: 01/05/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	1.978	8	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK89

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16618-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ELCS0538

Level: (low/med) LOW Date Received: 01/05/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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	2	J
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK89

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16618-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ELCS0538

Level: (low/med) LOW Date Received: 01/05/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.106	20	J
2.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK96

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16619-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ELCS0539

Level: (low/med) LOW Date Received: 01/06/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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	2	J
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK96

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16619-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ELCS0539

Level: (low/med) LOW Date Received: 01/06/98

% Moisture: not dec. _____ Date Analyzed: 01/13/98

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.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK95

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16619-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0559

Level: (low/med) LOW Date Received: 01/06/98

% Moisture: not dec. _____ Date Analyzed: 01/14/98

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	5	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
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	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.

BOMK95

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16619-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0559

Level: (low/med) LOW Date Received: 01/06/98

% Moisture: not dec. _____ Date Analyzed: 01/14/98

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	1.857	6	J
2.				
3.				
4.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOMK98

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16623-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0564

Level: (low/med) LOW Date Received: 01/08/98

% Moisture: not dec. _____ Date Analyzed: 01/15/98

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	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	5	U
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	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)	3	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOMK98

Lab Name: QUANTERRA MO Contract: 550.257

Lab Code: ITMO Case No.: SAS No.: SDG No.: W02160

Matrix: (soil/water) WATER Lab Sample ID: 16623-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: ESMP0564

Level: (low/med) LOW Date Received: 01/08/98

% Moisture: not dec. _____ Date Analyzed: 01/15/98

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 80-17-1	Benzenesulfonic acid, hydraz	1.843	5	NJ
2. 1825-61-2	Silane, methoxytrimethyl-	3.586	11	NJ
3. 1066-40-6	Silanol, trimethyl-	4.162	35	NJ
4. 95-36-3	1,2,4-Trimethylbenzene	21.471	6	NJ
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Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: Anions - EPA 300.0
Method: EPA 300.0
Matrix: LIQUID

Client ID: B0MK84

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Fluoride	16984-48-8	QCBLK162441-1	01/09/98	01/09/98	0.10	MG/L	U	0.10	1
Sulfate	14808-79-8	QCBLK162441-1	01/09/98	01/09/98	0.50	MG/L	U	0.50	1
Nitrate	NO3-N	QCBLK162441-1	01/09/98	01/09/98	0.020	MG/L	U	0.020	1
Nitrite	NO2-N	QCBLK162441-1	01/09/98	01/09/98	0.020	MG/L	U	0.020	1

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Project: 550.257

Category: Anions - EPA 300.0
Method: EPA 300.0
Matrix: LIQUID

Client ID: B0MK84

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-001DUP

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Fluoride	16984-48-8	QCBLK162441-1	01/09/98	01/09/98	0.10	MG/L	U	0.10	1
Sulfate	14808-79-8	QCBLK162441-1	01/09/98	01/09/98	0.50	MG/L	U	0.50	1
Nitrate	NO3-N	QCBLK162441-1	01/09/98	01/09/98	0.020	MG/L	U	0.020	1
Nitrite	NO2-N	QCBLK162441-1	01/09/98	01/09/98	0.020	MG/L	U	0.020	1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: Anions - EPA 300.0
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 01/30/98

Client ID: B0MK84

Quanterra ID : 16616-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Fluoride	16984-48-8	QCBLK162441-1	01/09/98	01/09/98	98	%REC			1
Sulfate	14808-79-8	QCBLK162441-1	01/09/98	01/09/98	101	%REC			5
Nitrate	NO3-N	QCBLK162441-1	01/09/98	01/09/98	110	%REC			5
Nitrite	NO2-N	QCBLK162441-1	01/09/98	01/09/98	97	%REC			5

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3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: Anions - EPA 300.0
Method: EPA 300.0
Matrix: LIQUID

Client ID: BOMK85

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 02/04/98

Quanterra ID : 16616-002

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Fluoride	16984-48-8	QCBLK162441-1	01/09/98	01/09/98	0.10	MG/L	U	0.10	1
Sulfate	14808-79-8	QCBLK162441-1	01/09/98	01/09/98	0.50	MG/L	U	0.50	1
Nitrate	NO3-N	QCBLK162441-1	01/09/98	01/09/98	0.020	MG/L	U	0.020	1
Nitrite	NO2-N	QCBLK162441-1	01/09/98	01/09/98	0.020	MG/L	U	0.020	1

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.257

Category: Nitrate/Nitrite
Method: EPA 353.1
Matrix: LIQUID

Sample Date : 12/31/97
Receipt Date : 01/02/98
Report Date : 01/30/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0MK84	16616-001	Nitrate/Nitrite	NO2+NO3-N	QCBLK163185-1	01/22/98	01/22/98	50.0	UG/L	U	50.0	1
B0MK84	16616-001DUP	Nitrate/Nitrite	NO2+NO3-N	QCBLK163185-1	01/22/98	01/22/98	50.0	UG/L	U	50.0	1
B0MK84	16616-001MS	Nitrate/Nitrite	NO2+NO3-N	QCBLK163185-1	01/22/98	01/22/98	102	%REC			1
B0MK85	16616-002	Nitrate/Nitrite	NO2+NO3-N	QCBLK163185-1	01/22/98	01/22/98	50.0	UG/L	U	50.0	1
NA	QCBLK163185-1	Nitrate/Nitrite	NO2+NO3-N	QCBLK163185-1	01/22/98	01/22/98	50.0	UG/L	U	50.0	1
NA	QCLCS163185-1	Nitrate/Nitrite	NO2+NO3-N	QCBLK163185-1	01/22/98	01/22/98	106	%REC			1

W02160

Quanterra R
Environmental Services

CERTIFICATE OF ANALYSIS

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

February 21, 1998

Attention: Joan Kessner

FEB 1998
RECEIVED
Data
Log In

SAF Number	:	B98-003
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W02160
Data Deliverable	:	Summary

I. Introduction

On January 2, 1998, two water samples were received by the Quanterra Environmental Services Richland Laboratory (QTESRL) for radiochemical and chemical analysis to be completed in 45 days. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford Incorporated (BHI) specific IDs:

QTESRL ID#	BHI ID#	MATRIX	DATE OF RECEIPT
80101401	B0MK84	WATER	1/2/98
80101402	B0MK85	WATER	1/2/98

II. Analytical Results/Methodology

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

The requested analyses were:

Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017
Gas Proportional Counting
Gross Alpha by method RICH-RC-5014
Gross Beta by method RICH-RC-5014
Strontium-90 by method RICH-RC-5006

III. Quality Control

The analytical results for each analysis performed under SDG W02160 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

IV. Comments

Gamma Spectroscopy

Gamma Spec by method RICH-RC-5017:
The LCS, batch blank, sample and sample duplicate (B0MK84) results are within contractual requirements.

Gas Proportional Counting

Gross Alpha by method RICH-RC-5014:
The LCS, batch blank, sample and sample duplicate (B0MK84) results are within contractual requirements.

Gross Beta by method RICH-RC-5014:
The LCS, batch blank, sample and sample duplicate (B0MK84) results are within contractual requirements.

Strontium-90 by method RICH-RC-5006:
The LCS, batch blank and sample duplicate (B0MK85) results are within contractual requirements. The sample MDA was greater than the contractual requirement due to a reduced volume of sample used based on high activity observed from the initial screening.

Quanterra
Environmental Services

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

Reviewed and approved:

Andy Kopriva
Project Manager

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W02160 / 4536
LAB SAMPLE ID:	80101401	MATRIX:	WATER
CLIENT ID:	B0MK84	DATE RECEIVED:	1/2/1998 10:50:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
SR-90	8.37E-02	U	2.2E-01	2.2E-01	4.73E-01	pCi/L	83.20%	RICHRC5071
CO-60	3.01E+00	U	4.2E+00	4.2E+00	9.72E+00	pCi/L	N/A	RICHRC5017
CS-137DA	3.00E+00	U	3.7E+00	3.7E+00	7.86E+00	pCi/L	N/A	RICHRC5017
EU-152	-3.03E+00	U	1.1E+01	1.1E+01	1.85E+01	pCi/L	N/A	RICHRC5017
EU-154	-8.40E+00	U	1.6E+01	1.6E+01	2.54E+01	pCi/L	N/A	RICHRC5017
EU-155	1.46E+00	U	8.4E+00	8.4E+00	1.48E+01	pCi/L	N/A	RICHRC5017
U-235HP	1.14E+01	U	2.2E+01	2.2E+01	3.70E+01	pCi/L	N/A	RICHRC5017
ALPHA	1.55E-01	U	2.7E-01	2.7E-01	5.58E-01	pCi/L	100.00%	RICHRC5014
BETA	1.78E+00	U	1.2E+00	1.2E+00	2.39E+00	pCi/L	100.00%	RICHRC5014-B

Number of Results: 9

Result = IDL When Not Detected
(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Quanterra Analytical Services, Inc
rptChemRadSample: v3.41

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W02160 / 4536
LAB SAMPLE ID:	80101402	MATRIX:	WATER
CLIENT ID:	B0MK85	DATE RECEIVED:	1/2/1998 10:50:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
SR-90	6.39E-02	U	2.1E-01	2.1E-01	4.66E-01	pCi/L	79.70%	RICHRC5071
CO-60	1.30E+00	U	3.8E+00	3.8E+00	8.19E+00	pCi/L	N/A	RICHRC5017
CS-137DA	3.17E+00	U	3.9E+00	3.9E+00	8.17E+00	pCi/L	N/A	RICHRC5017
EU-152	1.49E+01	U	8.4E+00	8.5E+00	1.92E+01	pCi/L	N/A	RICHRC5017
EU-154	2.17E+00	U	1.3E+01	1.3E+01	2.71E+01	pCi/L	N/A	RICHRC5017
EU-155	7.39E+00	U	8.7E+00	8.7E+00	1.62E+01	pCi/L	N/A	RICHRC5017
U-235HP	-6.12E+00	U	2.0E+01	2.0E+01	3.26E+01	pCi/L	N/A	RICHRC5017
ALPHA	4.16E-02	U	2.5E-01	2.5E-01	6.37E-01	pCi/L	100.00%	RICHRC5014
BETA	-1.31E-01	U	1.1E+00	1.1E+00	2.42E+00	pCi/L	100.00%	RICHRC5014-B

Number of Results: 9

Result = IDL When Not Detected
(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Quanterra Data Review Checklist
RADIOCHEMISTRY

Work Order number (s): 801014

Client ID: BHI

Due Date: 3-2-98

Lab Sample Number or SDG: W02160

Method Test Parameters: Gamma

Matrix: Water

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			✓	
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?	✓			✓
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			✓
C. QC Samples				
1. Is the blank yield within acceptance criteria			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			✓
3. Is the blank result < 1/2 the Contract Detection Limit?	✓			✓
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?			✓	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			✓
7. Is the LCS yield within acceptance criteria			✓	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			✓	
9. MS/MSD results and yield meet acceptance criteria?			✓	
10. Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. Other				
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filed out?	✓			✓
3. Correct methodology used?	✓			✓
4. Transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Joel Kempema Date: 2-18-98

Second Level Review: [illegible] Date: 2/18/98

Form #: LS-038.2 /96, Rev.4

Client request add on U235 HP + BHI 3"

C011

Quanterra Data Review Checklist
RADIOCHEMISTRY

Work Order number (s): 801014

Client ID: BKI

Due Date: 3-2-98

Lab Sample Number or SDG: W02160

Method Test Parameters: Alpha

Matrix: Water

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			✓	
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?			✓	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			✓
C. QC Samples				
1. Is the blank yield within acceptance criteria			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			✓
3. Is the blank result < 1/2 the Contract Detection Limit?	✓			✓
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?			✓	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			✓
7. Is the LCS yield within acceptance criteria			✓	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			✓
9. MS/MSD results and yield meet acceptance criteria?			✓	
10. Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. Other				
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filed out?	✓			✓
3. Correct methodology used?	✓			✓
4. Transcription checked? JM 2-2-98	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Jacqueline Wadelell Date: 2/17/98

Second Level Review: [signature] Date: 2/18/98

Form #: LS-038.2 /96, Rev.4

Quanterra Data Review Checklist
RADIOCHEMISTRY

Work Order number (s):	801014
Client ID:	BH1
Due Date:	3-2-98
Lab Sample Number or SDG:	W02160
Method Test Parameters:	β
Matrix:	H2O

Review Item	Yes (✓)	No (✓)	NA (✓)	2nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			✓	
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?			✓	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			✓
C. QC Samples				
1. Is the blank yield within acceptance criteria			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			✓
3. Is the blank result < 1/2 the Contract Detection Limit?	✓			✓
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?			✓	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			✓
7. Is the LCS yield within acceptance criteria			✓	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			✓
9. MS/MSD results and yield meet acceptance criteria?			✓	
10. Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. Other				
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filed out?	✓			✓
3. Correct methodology used?	✓			✓
4. Transcription checked?	SK ✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Jacqueline Wardell Date: 2/17/98

Second Level Review: [signature] Date: 2/18/98

Form #: LS-038,2 /96, Rev.4

Quanterra Data Review Checklist
RADIOCHEMISTRY

Work Order number (s): 801014

Client ID: BHI

Due Date: 3-2-98

Lab Sample Number or SDG: WP2160

Method Test Parameter: Sr-90

Matrix: Water

Review Item	Yes (✓)	No (✓)	NA (✓)	2nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			✓	
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?	✓			✓
2. Were all sample holding times met?	✓			✓
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			✓
C. QC Samples				
1. Is the blank yield within acceptance criteria	✓			✓
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			✓
3. Is the blank result < 1/2 the Contract Detection Limit?	✓			✓
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?			✓	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			✓
7. Is the LCS yield within acceptance criteria	✓			✓
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			✓
9. MS/MSD results and yield meet acceptance criteria?			✓	
10. Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. Other				
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filed out?	✓			✓
3. Correct methodology used?	✓			✓
4. Transcription checked? JM 2-19-98	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Jacqueline Wheldale Date: 2/19/98

Second Level Review: [illegible] Date: 2/20/98

Form #: LS-038.2/96, Rev.4

CHAIN OF

CUSTODY FORMS

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-09	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-049	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

SAMPLE ANALYSIS 801013 Sdc W0021C0

Preservation	HNO3 to pH <2	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo			
Type of Container	P	P	P	P	P	P	aGs*			
No. of Container(s)	1	1	1	1	3	3	3			
Volume	1L	500ml	500ml	500ml	1L	1L	40ml			
	Gross Alpha; Gross Beta 801014	See item (1) in Special Instructions	NO2/NO3 - 353.1	See item (2) in Special Instructions	See item (3) in Special Instructions 801014	Strontium-89,90 -- Sr-90	VOA - 8260A (TCL), VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]			

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK84 01	Water	12-31-97	08:15	X	X	X	X	X	X	X			

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0850	Bonny Bowman	1-2-98 / 0850
Bonny Bowman	1-2-98 / 1050	David Stillenberg	1-2-98 1050
			2400 PM

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 [Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate]
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) [Bismuth, Boron, Tin]; ICP Metals - 6010A (Supertrace) [Arsenic, Lead, Selenium]
(3) Gamma Spectroscopy(Water) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add on [Uranium-235]

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

C016

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-10	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-047	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HNO3 to pH <2	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo			
Type of Container	P	P	P	P	P	P	aGs*			
No. of Container(s)	1	1	1	1	3	3	3			
Volume	1L	500ml	500ml	500ml	1L	1L	40ml			
SAMPLE ANALYSIS	Gross Alpha, Gross Beta 801014	See item (1) in Special Instructions	NO2/NO3 - 353 1	See item (2) in Special Instructions	See item (3) in Special Instructions 801014	Strontium-89,90 -- Sr-90	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)			
801013										

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK85 02	Water	12-31-97	07:45	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R. Fahlberg/R. Fahlberg	1-2-98 0850	Doug Bowers	1-2-98/0850
Relinquished By	Doug Bowers	1-2-98/1050	Received By	1-2-98 1050
Relinquished By		Date/Time	Received By	Date/Time 2100 CPM
Relinquished By		Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Bismuth, Boron, Tin}; ICP Metals - 6010A (Supertrace) {Arsenic, Lead, Selenium}
(3) Gamma Spectroscopy(Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Uranium-235}

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

C017

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-01	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101303	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]										

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK76	Water	12-29-97	0530	X									
			DAS										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0900	Doug Bowman	1-2-98 0900
Relinquished By	Date/Time	Received By	Date/Time
Doug Bowman	1-2-98/1050	Laura Hebeler	1-2-98 1050
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

<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

6018

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-02	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC-96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

SAMPLE ANALYSIS 80101304

Preservation	HCl or H2SO4 to pH <2 Coo											
Type of Container	aGs*											
No. of Container(s)	3											
Volume	40ml											
	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)											

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK77	Water	12-29-97	0535	X									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0835	Dang Bowen	1-2-98 / 0910
Dang Bowen	1-2-98 / 1050	L. Hellinling	1-2-98 / 1050

SPECIAL INSTRUCTIONS

< 100 CPM

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

0010

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-03	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101305	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time	[redacted]									
B0MK78	Water	12-30-97	05:40	X									

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

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1-2-98 0900	Doug Bowen	1-2-98 / 0900
Doug Bowen	1-2-98 / 1050	Kevin Hilberling	1-2-98 1050

SPECIAL INSTRUCTIONS

<100 ppm

Matrix *

S	=	Soil
SE	=	Sediment
SO	=	Solid
SI	=	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	B98-003-04	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-060	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101306	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No.	Matrix *	Sample Date	Sample Time								
B0MK79	Water	12-30-97	05:42	X							

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg/R. Fahlberg	1-2-98 0910	Amy Bowers	1-2-98/0910
Amy Bowers	1-2-98/1050	Bauer Stitzlung	1-2-98

SPECIAL INSTRUCTIONS

TOC U
<100 ml

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	B98-003-06	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101307	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										

Sample No.	Matrix *	Sample Date	Sample Time	[redacted]									
B0MK81	Water	12/31/97	05:50	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By 1-2-98 R. Fahlberg/R. Fahlberg	Date/Time 0905	Received By Doug Bowen	Date/Time 1-2-98/0905
Relinquished By Doug Bowen	Date/Time 1-2-98/1050	Received By Karen Stillwell 1-2-98	Date/Time 1050
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

6022

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-07	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101308	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No. / Matrix * / Sample Date / Sample Time											
B0MK82 / Water / 12/31/97 / 05:45	X										

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0910	Doug Bowman	1-2-98/0910
Doug Bowman	1-2-98/1050	[illegible]	2-98/1100 PM

SPECIAL INSTRUCTIONS

1050

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

6023

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-08	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERL 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101309	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No.	Matrix *	Sample Date	Sample Time								
B0MK83	Water	12/31/97	05:48	X							

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg/R. Fahlberg	1-2-98 0910	Doug Bowman	1-2-98/0910 1050
Doug Bowman	1-2-98/1050	Darrin Hawley	1-2-98 1100 PST

SPECIAL INSTRUCTIONS

Matrix *

S	-	Soil
SE	-	Sediment
SO	-	Solid
SI	-	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	B98-003-11	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96.049	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101310	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]										

Sample No.	Matrix *	Sample Date	Sample Time										
~~B0MK00~~ ~~B0MK85~~	~~Water~~												
~~12/31/97 1045~~	FAS 12/31/97												
B0MK85	water	12/30/97	05:45	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By 1-2-98 R. Fahlberg/R. Fahlberg	Date/Time 0850	Received By Doug Bowers	Date/Time 1-2-98/0850
Relinquished By Doug Bowers	Date/Time 1-2-98/1050	Received By Kevin Ashbaugh	Date/Time 1-2-98 1050
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

1100 CPM

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

0025

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-12	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-049	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

SAMPLE ANALYSIS 80101311

Preservation	HCl or H2SO4 to pH <2 Coo											
Type of Container	aGs*											
No. of Container(s)	3											
Volume	40ml											
	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol, Diethyl ether]											

Sample No.	Matrix *	Sample Date	Sample Time										
B0MK87 ~~B2MK~~	Water	12/30/97	05:48	X									
12/30/97 DS													

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1-2-98 0850	Doug Bowers	1-2-98 / 0850
Doug Bowers	1-2-98 / 1050	Brian Schlueter	1-2-98 1050 2100 PM

SPECIAL INSTRUCTIONS

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

0026

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-18	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101312	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No.	Matrix *	Sample Date	Sample Time								
B0MK93	Water	12-31-97	1015	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg / R. Fahlberg 1-2-98	Date/Time 0915	Received By Dang Bowers	Date/Time 1-2-98 / 0915
Relinquished By Dang Bowers 1-2-98	Date/Time 1050	Received By Karen Schlieb	Date/Time 1-2-98 1100 PST
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

1050

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

0005

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B98-003-19	Page 1 of 1

Collector R. Fahlberg/D. St. John	**Company Contact** Curt Wittreich	**Telephone No.** 372-9586	**Project Coordinator** KOERNER, CC	**Data Turnaround** 45 Days
Project Designation 216-B-2-2 Ditch - Water	**Sampling Location** 200 East		**SAF No.** B98-003	
Ice Chest No. ERC 96-034	**Field Logbook No.** EL-1281		**Method of Shipment** Hand delivered	
Shipped To Quanterra Incorporated	**Offsite Property No.**		**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage Cool 4C

Preservation	HCl or H2SO4 to pH <2 Coo										
Type of Container	aGs*										
No. of Container(s)	3										
Volume	40ml										
SAMPLE ANALYSIS 80101313	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Butanol, Diethyl ether)										
Sample No.	Matrix *	Sample Date	Sample Time								
B0MK94	Water	12·31·97	1018 12·31·97	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg / R. Fahlberg	Date/Time 1-2-98 0915	Received By Doug Bowman	Date/Time 1-2-98 / 0915
Relinquished By Doug Bowman	Date/Time 1-2-98 / 1050	Received By Karen Schlenker	Date/Time 1-2-98 1650 2100 PM
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0022

CCN: 053570

Quanterra Bom K85

ϕ pCi/gm

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

Job No. 22192
Written Response Required NO
Due Date N/A
Actionee: N/A
Claim CCN N/A
OU 216 B2-2
TSD N/A
ERA N/A
Subject Code: 5850

TO: D. A. St John L0-19
C. D. Wittreich H9-06
F. G. Zwiesler X0-23

DATE: December 10, 1997

COPIES: See Below

FROM: S. K. De Mers
RadCon Engineering
X0-23/531-0729

SUBJECT: **USING FIELD READINGS TO DETERMINE SHIPPING REQUIREMENTS FOR SAMPLES IN SUPPORT OF THE 216 B 2-2 VADOSE ZONE INVESTIGATION**

REF: The Health Physics and Radiological Health Handbook

The purpose of this memo is to provide direction in determining using field instruments, when samples taken in support of the 216 B 2-2 vadose zone investigations must be shipped as radioactive material as defined in Department of Transportation requirements.

Radioactive material for shipping purposes is defined by the Department of Transportation as any material that has an activity in excess of 2,000 pCi/gm. For the purpose of conservatism, the demarcation point for determining radioactive material for shipping purposes will be 1,500 pCi/gm. Two separate approaches will be used to validate the use of field instruments to determine activity in soil samples.

The first approach is to use a formula for determining beta exposure rate from solutions of radioactive material contained in the *Health Physics and Radiological Health Handbook*. This formula is 2.12 times the average energy of the beta particle in MEV, times the concentration of the isotope in uCi/gm.

$$2.12 \; X \; E \; X \; C = Rads/hr$$

Where; 2.12 is a conversion factor
E is the average energy of the beta particle (Sr90 = 0.195 MEV, Y90 = 0.935 MEV)
C is the concentration of the isotope in uCi/gm

Inserting the values for Sr/Y90 beta energy and the concentration of 1,500 pCi/gm

$$2.12 \; X \; (0.195 + 0.935) \; X \; 1.5 \; X \; 10^{-3} \; uCi/gm = 0.0036 \; Rads/hr$$

0.0036 RADS/hr is equal to 3.6 mRad/hr. The field instrument has a correction factor of 3 for beta radiation, so the RO-20 (beta/gamma dose rate instrument) would read 1.2 mRad/hr. Field readings taken at the 216 B2-2 trench showed for each 1 mRad/hr as read (uncorrected) on the RO-20, the E-600 ratemeter equipped with an SH-380 plastic scintillator, read 100,000 dpm. Therefore, from the above comparison, a sample with an activity of 1,500 pCi/gm would read 1.2 mRad/hr on the RO-20 and 120,000 dpm on the E-600 equipped with a SH-380 probe.

For the second approach, a soil standard with 300 pCi/gm is used. This soil standard was read with an Electra ratemeter equipped with a DP-6 plastic scintillator that had 30% efficiency for Sr90. The 300 pCi/gm source read 16 cpm per pCi/gm. Multiplying this value by 1,500 pCi/gm would result in a reading on the Electra/DP-6 equipment of 80,000 dpm (using an efficiency of 30%). So for this instrument, 1,500 pCi/gm of Sr90 would read 80,000 dpm.

From this we can gather the 1,500 pCi/gm will range between 80,000 dpm and 120,000 dpm. The RCT and sampler/shipper will verify actual readings in the field using the 300-pCi/gm Sr90 source and logged. The 1,500-pCi/gm value will be used.

SKD:dld

Copies:
R. C. Havenor X0-17
V. J. Rohay H9-02
W. S. Thompson L0-19
RadCon Engineering FIle/LB X0-23
Document and Info Services H0-09

CH2MHILL SUBJECT Quanterra Sample Sets 216-B-2-2 Ditch Boring 8079 BY D. St. John SHEET NO. 1 of 2 DATE 1/: 98 PROJECT NO.

Per Dewlers Total Act. Calc Letter:

$$\left(\frac{\text{cpm soil}}{\text{cpm source}}\right) 300\ \text{pCi/gm} = \text{Sample Activity}$$

Assume all Sr-90

* BOMJC2

$$\left(\frac{1000\ \text{cpm}}{1400\ \text{cpm}}\right) 300\ \text{pCi/gm} = \underline{215\ \text{pCi/gm}}$$

* BOMJC8

$$\left(\frac{1500\ \text{cpm}}{1400\ \text{cpm}}\right) 300\ \text{pCi/gm} = \underline{321\ \text{pCi/gm}}$$

* BOMJD4

$$\left(\frac{1000\ \text{cpm}}{1400\ \text{cpm}}\right) 300\ \text{pCi/gm} = \underline{215\ \text{pCi/gm}}$$

* BOMK85 & BOMK84

No radioactivity

* BOMJD7

$$\left(\frac{150\ \text{cpm}}{1400\ \text{cpm}}\right) 300\ \text{pCi/gm} = \underline{32\ \text{pCi/gm}}$$

* BOMJF3

$$\left(\frac{150\ \text{cpm}}{1400\ \text{cpm}}\right) 300\ \text{pCi/gm} = \underline{32\ \text{pCi/gm}}$$

* BOMJJ1

$$\left(\frac{150\ \text{cpm}}{1400\ \text{cpm}}\right) 300\ \text{pCi/gm} = \underline{32\ \text{pCi/gm}}$$

CH2MHILL SUBJECT Quantera Sample Calc BY D. St. John
216-B-2-2 Ditch SHEET NO. 2 of 2 DATE 1/2/98
Burrng 8079 PROJECT NO.

* BOMJJ4

$$\left(\frac{100\ cpm}{1400\ cpm}\right) 300\ pCi/gm = \underline{22\ pCi/gm}$$

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1-2-98 1050 SG#: W0216D

Work Order Number: 801013 + 014 SAF #: B98-003 B98-004

Shipping Container ID: ERC-96-0160 Chain of Custody # B98-003-02 B98-003-04

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 4°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓] N/A
6. Number of samples in shipping container: 30
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: [signature] Date: 1-2-98

Telephoned To: _____ On _____ By _____

0033

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1-2-98 1050 SG#: W021GD

Work Order Number: 801013 + 014 SAF #: B98-003 B98-004

Shipping Container ID: ERC 96 034 Chain of Custody # B98-003-01 B98-004 B98-003-03 B98-003-06 B98-003-07 B98-003-08 B98-003-18 B98-003-19

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 4°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓] None
6. Number of samples in shipping container: ~~100~~ 101
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: Karen Stitzenberg Date: 1-2-98

Telephoned To: _____ On _____ By _____

0034

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1-2-98 1050 SG#: W02160

Work Order Number: 8010013+014 SAF #: B98-003

Shipping Container ID: EXC 96649 Chain of Custody # B98-003-09 B98-003-11 B98-003-10 B98-003-12

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 4°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓] NA
6. Number of samples in shipping container: 32
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: [signature] Date: 1-2-98

Telephoned To: _____ On _____ By _____

0035

(R) 1/5/98

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BHI B0MJJ4		1/5/1998	QUAD24C	1/5/1998 11:05:44 AM	B0MJJ4	30	10	0.26166667	80	1.6916667
	SOLID		Bkg:	1/1/1998 2:04:03 AM	BKG	600	43	0.07166667	585	0.975
Anl Date: 1/5/1998	Tot Sa, Alq: 1.00E+03	, 1.00E+02	Alp; (Dpm/ 1.69E+00	(uCi/ 7.59E-03	(pCi/ 7.59E+00	± 5.2E+00	CAT I	6.6E+00	Lab Alq	
Ppt mg: 100.4	Units: g	, mg	Bet; Alq): 3.57E+00	Sa): 1.60E-02	Lig): 1.60E+01	± 3.0E+00		6.3E+00	Lig	
BHI B0MK84		1/5/1998	QUAD24D	1/5/1998 11:05:44 AM	B0MK84	30	6	0.145	45	0.5
01	LIQUID		Bkg:	1/1/1998 2:04:03 AM	BKG	600	33	0.055	600	1
Anl Date: 1/5/1998	Tot Sa, Alq: 7.00E+00	, 1.00E+01	Alp; (Dpm/ 4.02E-01	(uCi/ 1.27E-04	(pCi/ 1.81E+01	± 2.1E+01	CAT I	1.4E+00	Lab Alq	
Ppt mg: 0	Units: L	, ml	Bet; Alq): 8.84E-01	Sa): 2.79E-04	Lig): 3.98E+01	± 2.0E+01		1.3E+00	Lig	
BHI B0MK85		1/5/1998	QUAD21A	1/5/1998 11:57:56 AM	B0MK85	30	7	0.11333333	45	0.4466667
02	LIQUID		Bkg:	1/1/1998 2:03:58 AM	BKG	600	72	0.12	632	1.0533333
Anl Date: 1/5/1998	Tot Sa, Alq: 7.00E+00	, 1.00E+01	Alp; (Dpm/ 3.16E-01	(uCi/ 9.97E-05	(pCi/ 1.42E+01	± 2.2E+01	CAT I	1.8E+00	Lab Alq	
Ppt mg: 0	Units: L	, ml	Bet; Alq): 8.30E-01	Sa): 2.62E-04	Lig): 3.74E+01	± 2.1E+01		1.3E+00	Lig	
BHI TEDF0102981		1/5/1998	QUAD21B	1/5/1998 11:57:56 AM	TEDF0102981	30	4	0.05333333	44	0.5066667
	LIQUID		Bkg:	1/1/1998 2:03:58 AM	BKG	600	48	0.08	576	0.96
Anl Date: 1/5/1998	Tot Sa, Alq: 1.00E+00	, 1.00E+01	Alp; (Dpm/ 1.55E-01	(uCi/ 6.98E-06	(pCi/ 6.98E+00	± 2.2E+01	CAT I	3.6E+00	Lab Alq	
Ppt mg: 2.3	Units: L	, ml	Bet; Alq): 9.51E-01	Sa): 4.29E-05	Lig): 4.29E+01	± 2.0E+01		1.2E+00	Lig	

C036

3-2-98

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

5-Jan-1998
Page 1

CUSTOMER: BHI

SAMPLE DELIVERY GROUP W02160

MATRIX : WATER

BATCH NUMBER 01-014

	GES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	~~J0101413~~ 15				
1)	80101401 D0101401		BHI	BOMK04	PHCZ
2)	80101402		BHI	BOMK05	J

ACTIONS (Initial & Date)

1) INITIATED JH 1/5/98

SOP(S) # RD 00160

2) PREP LAB RECEIVED 1/28/98 JS 1/28/98

SOP(S) # RICHRS0147 r1

3) SAMPLE REMAINDER STORED _____

SOP(S) # _____

4) SEPARATION LAB RECEIVED N/A

SOP(S) # _____

5) COUNTING/MEASUREMENT LAB 1/29/98 ml

SOP(S) # RICHRD0007

6) DATA REVIEWED AND ANALYTICAL PREP STORED 1/2-18-98

SOP(S) # RICHRC0002 Rev 1

0037

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

5-Jan-1998
Page 1

CUSTOMER: BHI

SAMPLE DELIVERY GROUP WD2160

MATRIX : WATER

BATCH NUMBER 01-014

	QES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	~~D0101418~~				
	D0101415				
1)	80101401	D0101401	BHI	BOMKB4	PHL2
2)	80101402		BHI	BOMKB5	

ACTIONS (Initial & Date)

1) INITIATED JH 1/5/98

SOP(S) # RD8820

2) PREP LAB RECEIVED 1/28/98 BG

SOP(S) # RICHRC0014.0

3) SAMPLE REMAINDER STORED na

SOP(S) #

4) SEPARATION LAB RECEIVED

SOP(S) #

5) COUNTING/MEASUREMENT LAB 1/30/98 nl

SOP(S) # RICHRD0003

6) DATA REVIEWED AND ANALYTICAL PREP STORED 2/17/98

SOP(S) # RICHRC0002/1

*** BETA ***

Due 3/2

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

5-Jan-1998
Page 1

CUSTOMER: BHI

SAMPLE DELIVERY GROUP W02160

MATRIX : WATER

BATCH NUMBER 01-014

	GES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	~~J0101446~~ JS				
1)	80101401	D0101401	BHI	BOMK84	PH2
2)	80101402		BHI	BOMK85	

ACTIONS (Initial & Date)

1) INITIATED JH 1/5/98

SOP(S) # RD3001

2) PREP LAB RECEIVED 1/28/98

SOP(S) # RICHRD014.0

3) SAMPLE REMAINDER STORED na

SOP(S) #

4) SEPARATION LAB RECEIVED

SOP(S) #

5) COUNTING/MEASUREMENT LAB 1/30/98

SOP(S) # RICHRD0003

6) DATA REVIEWED AND ANALYTICAL PREP STORED 2/17/98

SOP(S) # RICHRC0002/1

3-2-18

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

5-Jan-1998
Page 1

CUSTOMER: BHI

SAMPLE DELIVERY GROUP W02160

MATRIX : WATER

BATCH NUMBER 01-014

	QES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	J0101418				
	J0101415		EQGJ337	30.108 ± 0.45757 DPM	
1)	80101401		BHI	BOMK84	
2)	80101402		BHI	BOMK85	
	~~J0~~ K D0101402				

ACTIONS (Initial & Date)

1) INITIATED JH 1/5/98

SOP(S) # RD0000

2) PREP LAB RECEIVED am 1-22-98

SOP(S) # RKHRC5006 #2

3) SAMPLE REMAINDER STORED) _____

SOP(S) # _____

4) SEPARATION LAB RECEIVED RTM 2/9/98

SOP(S) # RichRC5071/0

5) COUNTING/MEASUREMENT LAB ed 2/16/98

SOP(S) # RichHRD000 3Rev 1

6) DATA REVIEWED AND ANALYTICAL PREP STORED 2/19/98

SOP(S) # RICHRCCCC2/1