

003079-Q85



Quanterra  
2800 George Washington Way  
Richland, Washington 99352-1613

0052215

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### CERTIFICATE OF ANALYSIS

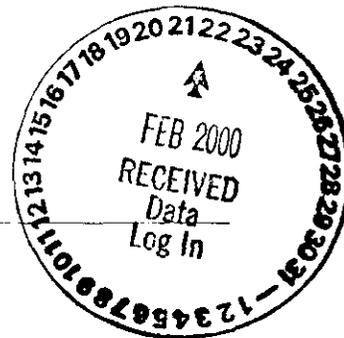
Bechtel Hanford, Inc.  
3350 George Washington Way  
Richland, WA 99352

**RECEIVED**  
MAR 28 2000

February 17, 2000

**EDMC**

Attention: Joan Kessner



SAF Number	:	B99-014
Date SDG Closed	:	January 31, 2000
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W03039
Data Deliverable	:	7-Day / Summary

#### I. Introduction

On January 31, 2000, two water samples were received at the Quanterra Richland Laboratory (QRL) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>QESRL ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9DS2JW10	B0NLR7	WATER	1/31/00
9DS2JX10	B0NLR8	WATER	1/31/00

#### 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 analysis was:

**Gas Proportional Counting**  
Total Strontium by method RICH-RC-5006

0002

Bechtel Hanford, Inc.

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### III. Quality Control

The analytical results for each analysis performed under SDG W03039 includes a minimum of two Laboratory Control Samples (LCS) and one method (reagent) blank. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

### IV. Comments

#### **Gas Proportional Counting**

Total Strontium by method RICH-RC-5006:

The MDA for sample B0NLR7 does not meet the CRDL due to the reduced volumes analyzed. The detected activity exceeds the achieved MDA, therefore the data are accepted for reporting. Except as noted, the laboratory control samples, batch blank and sample results are within contractual requirements.

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:



Jackie Waddell  
Project Manager

### SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland      SDG: /RPT GRP: W03039 / 9716  
LAB SAMPLE ID: 9D82JW10      MATRIX: WATER  
CLIENT ID: B0NLR7      DATE RECEIVED: 1/31/2000 11:55:00 AM

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ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	3.98E+02		1.3E+01	1.1E+02	3.27E+00	pCi/L	99.00%	RICHRC5006

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Number of Results: 1

### SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland      SDG: /RPT GRP: W03039 / 9716  
LAB SAMPLE ID: 9D82JX10      MATRIX: WATER  
CLIENT ID: B0NLR8      DATE RECEIVED: 1/31/2000 11:55:00 AM

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ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	2.32E+03		3.1E+01	6.2E+02	2.88E+00	pCi/L	97.10%	RICHRC5006

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Number of Results: 1

### DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland      SDG: /RPT GRP: W03039 / 9716  
LAB SAMPLE ID: D82JW12R      MATRIX: WATER  
CLIENT ID: B0NLR7 DUP      DATE RECEIVED: 1/31/2000 11:55:00  
ORIG LAB SAMPLE ID: 9D82JW10

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
STRONTIUM	3.99E+02	1.3E+01	1.1E+02	2.67E+00	pCi/L	98.20%	RICHRC5006	3.98E+02	0.19%

Number of Results: 1

### BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W03039 / 9716  
LAB SAMPLE ID: D84FF11B MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	6.03E-01	U	1.3E+00	1.3E+00	2.85E+00	pCi/L	94.90%	RICHRC5006

Number of Results: 1

0007

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03039 / 9716  
LAB SAMPLE ID: D84FF12S MATRIX: WATER

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ANALYTE	RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	7.95E+01	5.9E+00	2.2E+01	2.74E+00	pCi/L	92.50%	6.81E+01	116.86%

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Number of Results: 1

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03039 / 9716  
LAB SAMPLE ID: D84FF13S MATRIX: WATER

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ANALYTE	RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	6.60E+01	5.3E+00	1.8E+01	2.54E+00	pCi/L	97.40%	6.88E+01	95.95%

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Number of Results: 1

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-014-02		Page #/Total of #/Total		
Collector <i>Adair</i>		Company Contact Julian Laurenz		Telephone No. 372-9582		Project Coordinator TRENT, SJ		Price Code <b>1D</b>		
Project Designation 100-NR-2 Pump & Treat Operational Sampling		Sampling Location <i>Effluent T-100</i>				SAF No. B99-014		Data Turnaround <b>7 Days</b>		
Ice Chest No. <i>ERL44002</i>		Field Logbook No. <i>EL-1345-1</i>		COA		Method of Shipment Govt Vehicle				
Shipped To Quanterra Incorporated		Offsite Property No. <i>N/A</i>				Bill of Lading/Air Bill No. <i>N/A</i>				
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation		<i>N/A</i>				
				Type of Container		<i>PL</i>				
				No. of Container(s)		<i>2</i>				
				Special Handling and/or Storage		Volume		<i>500ml</i>		
SAMPLE ANALYSIS										
<i>WL3039 J09310156</i>										
Sample No.	Matrix *	Sample Date	Sample Time							
<i>BONLR7</i>	<i>Water</i>	<i>1-31-00</i>	<i>0730</i>	<i>1 D82JA</i>	<i>Bottles Head</i>	<i>SK90</i>				
<i>BONLR8</i>	<i>Water</i>	<i>1-31-00</i>	<i>0731</i>	<i>1 D82JA</i>					<i>1/31/00</i>	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *
Relinquished By <i>J. Adair</i>		Date/Time <i>1-31-00/1040</i>		Received By <i>D.W. Shea</i>		Date/Time <i>1-31-2000/1040</i>		<i>Sample originated in Non-Red Controlled Area. 5000 Pci/g. NO TA Required</i>		S=Soil SE=Sediment SO=Solid S=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By <i>D.W. Shea</i>		Date/Time <i>1-31-00/1130</i>		Received By <i>Rikki Thoren</i>		Date/Time <i>1/31/00/1130</i>				
Relinquished By <i>Rikki Thoren</i>		Date/Time <i>1/31/00/1155</i>		Received By <i>K. Selkowitz</i>		Date/Time <i>1-31-00</i>				
Relinquished By		Date/Time		Received By		Date/Time				
Relinquished By		Date/Time		Received By		Date/Time				
Relinquished By		Date/Time		Received By		Date/Time				
LABORATORY SECTION		Received By				Title				Date/Time
FINAL SAMPLE DISPOSITION		Disposal Method				Disposed By				Date/Time

1012

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1-31-00 1155 SG#: W03039

Work Order Number: JOA31056 SAF #: B99-014

Shipping Container ID: ERC99022 Chain of Custody # \_\_\_\_\_

- 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 4 Wet [] Dry []
- 6. Number of samples in shipping container: \_\_\_\_\_
- 7. Sample holding times exceeded? Yes [] No []

8.	Samples have:	<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels	<input type="checkbox"/> appropriate sample labels
		<input checked="" type="checkbox"/> custody seals	<input type="checkbox"/>	

9.	Samples are:	<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking	<input type="checkbox"/> have air bubbles
		<input type="checkbox"/> broken	<input type="checkbox"/>	

10. Where any anomalies identified in sample receipt? Yes [] No []

11. Description of anomalies (include sample numbers): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Sample Custodian/Laboratory: K. Schindler Date: 1-31-00

Telephoned To: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

# Client Sample Screening Results

31-Jan-00

(B) 1-31-00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B				
BHI	B0NLR7D82JW		1/31/2000 1:23:00 PM	QUAD23C	1/31/2000 1:58:47 PM	B0NLR7D82JW	30	18	0.506666667	271	8.14833333				
	D82JW	LIQUID		Bkg:	1/29/2000 1:46:44 AM	BKG	600	56	0.093333333	531	0.885				
Anl Date:		1/31/00	Tot Sa, Alq:	5.00E-01	, 1.00E+01	Alp; (Dpm/	1.26E+00	(uCi/	2.83E-05	(pCi/	5.67E+01	± 2.3E+01	CAT	4.4E-01	Lab
Ppt mg:		1.1	Units:	L	, ml	Bet; Alq):	1.55E+01	Sa):	3.49E-04	Ljg):	6.98E+02	+ 4.8E+01	I	7.2E-02	Alq Ljg
BHI	B0NLR8D82JX		1/31/2000 1:23:00 PM	QUAD23D	1/31/2000 1:58:47 PM	B0NLR8D82JX	30	40	1.266666667	903	29.2616667				
	D82JX	LIQUID		Bkg:	1/29/2000 1:46:44 AM	BKG	600	40	0.066666667	503	0.83833333				
Anl Date:		1/31/00	Tot Sa, Alq:	5.00E-01	, 1.00E+01	Alp; (Dpm/	3.06E+00	(uCi/	6.88E-05	(pCi/	1.38E+02	± 2.8E+01	CAT	1.8E-01	Lab
Ppt mg:		1	Units:	L	, ml	Bet; Alq):	5.50E+01	Sa):	1.24E-03	Ljg):	2.48E+03	+ 8.5E+01	I	2.0E-02	Alq Ljg
BHI	B0W871D82K8		1/31/2000 1:23:00 PM	QUAD23B	1/31/2000 1:58:47 PM	B0W871D82K8	30	11	0.275	134	3.44				
	D82K8	SOIL		Bkg:	1/29/2000 1:46:44 AM	BKG	600	55	0.091666667	616	1.02666667				
Anl Date:		1/31/00	Tot Sa, Alq:	6.41E+01	, 1.07E+02	Alp; (Dpm/	1.74E+00	(uCi/	4.69E-04	(pCi/	7.32E+00	± 5.0E+00	CAT	6.8E+00	Lab
Ppt mg:		107.2	Units:	g	, mg	Bet; Alq):	7.43E+00	Sa):	2.00E-03	Ljg):	3.12E+01	+ 3.6E+00	I	3.2E+00	Alq Ljg

41014

31-Jan-00

RQC053

Quanterra Incorporated  
Information Sheet Rad Prep

Run Date: 2/02/00  
Time: 9:30:08

Parent Batch:  
Associated Batches:  
:  
:  
:  
:

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\* QC BATCH: 0033209 \*  
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Page: 1

*7day*

*W03039*

*7day*

TH: Total Strontium by GPC  
CG: Sr-Total Prp/SepRC5006  
SI: CLIENT: HANFORD

Analytical Due Date: 2/07/00

Project Manager: JW2

Lot# Work Order	Client	Analyt Due Matrix	Client Name Aliquot Geometry	Count	Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha Beta	PM Bin
J0A310156-001 D82JW-1-01		2/07/00 WATER	Bechtel Hanford, .0000	.000		1/31/00 7:30		2.00E+00	pCi/L	5.67E-14 6.98E-13 11 01/00	JW2
J0A310156-001 X D82JW-1-02		2/07/00 WATER	Bechtel Hanford, .0000	.000		1/31/00 7:30		2.00E+00	pCi/L	5.67E-14 6.98E-13 11 01/00	JW2
J0A310156-002 D82JX-1-01		2/07/00 WATER	Bechtel Hanford, .0000	.000		1/31/00 7:31		2.00E+00	pCi/L	1.38E-13 2.48E-12 11 01/00	JW2
J0B020000-209 B D84FF-1-01		2/07/00 WATER	Bechtel Hanford,			1/31/00 7:30		2.00E+00	pCi/L	**NA **NA	JW2
J0B020000-209 C D84FF-1-02		2/07/00 WATER	Bechtel Hanford,			1/31/00 7:30		2	pCi/L	**NA **NA	JW2
J0B020000-209 C D84FF-1-03		2/07/00 WATER	Bechtel Hanford,			1/31/00 7:30		2	pCi/L	**NA **NA	JW2

Total Number of Samples In Batch: 00006

Batch Information:

Dry Wt: N      Decay Correct: Y      Blank Sub: None      Call In:  
Uncert: Both      Sigma: 1.960      ODR: Target List + Other Detected

BLANK CRDL      Strontium-90      2.00E+00      Tracer Yield      Type      QC Control Limits  
Strontium Trace      (020-105)      RPD

- \*\* NYS = Not Yet Screened
- \*\* NA = Not Applicable
- \*\* Other = Other than Gross Alpha or Gross Beta
- \*\* Indicates that Batch Information has changed for this sample. Print worksheet for details.

0015

*7day*

CCC Signature Page

W03039

Lot or Batch #	Initials/Date	Procedure #
Released By	KA 2-2-00	Richard 0009
Received	AB 2-2-00	RICHARD 5006.2
Released By	AB 2-7-00	==
Received	CA 2/7/00	CA 10003R2
Released By	CA 2/7/00	==
Received	DM 2-8-00	Radicle v2.4
Released By	DM 2-8-00	==
Received	PK 2-8-00	RICHARD ==
Released By	PK 2-8-00	==
Received		
Released By		==
Received		
Released By		==
Received		

SDR # B00-046Revision #: 0Date Initiated: 2/02/00

## SAMPLE DISPOSITION RECORD

SAF: B99-014

OU: 100-NR-2

Project ID: 100-NR-2 TS

Task ID: 1

Sampling Event: Pump &amp; Treat Operational Sampling

Laboratory: Quanterra Incorporated

Task Manager: J.E. Laurenz

## Sampling Information:

Number of Samples: 2

ID Numbers: B0NLR7, B0NLR8

Matrix: Water

Collection Date: 1/31/00

## Issue Background:

Class:  Project Data Use  General Laboratory Direction  Validation Direction  Sample Management Direction

Type: Addition of Analyses

Description: Analyze Sample for Total Radioactive Strontium

## Disposition:

Description: Operators at the 100-NR-2 pump and treat system did not indicate any analyses on the chain of custody for the listed samples. ERC Sample Management requested the laboratory to run Total Radioactive Strontium on the listed samples.

Justification: Operational monitoring samples require analysis for Total Radioactive Strontium to identify strontium column breakthrough for the pump and treat system.

## Approval Signatures:

S. J. Trent *S. J. Trent*  
Project Coordinator (Print/Sign Name)

*2/2/00*  
Date

J.E. Laurenz *J.E. Laurenz*  
Task Manager (Print/Sign Name)

*2/2/00*  
Date