W03100-STL

Quanterra

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CERTIFICATE OF ANALYSIS

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

April 5, 2000

Attention: Joan Kessner

SAF Number	:	B00-014
Date SDG Closed	:	February 29, 2000
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W03100
Data Deliverable	:	21-Day / Summary

I. Introduction

On February 29, 2000, one water sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

QRL ID#	BHI ID#	MATRIX	DATE OF RECEIPT
9D959V10	B0XKL3	WATER	2/29/00

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 analyses were:

Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017
Gas Proportional Counting
Total Strontium by method RICH-RC-5006
Alpha Spectroscopy
Plutonium-238, -239/40 by method RICH-RC-5010
Americium-241 by method RICH-RC-5080
Liquid Scintillation Counting
Technetium-99 by method RICH-RC-5078

Nickel-63 by method RICH-RC-5069
Carbon-14 by method RICH-RC-5022

III. Quality Control

The analytical results for each analysis performed under SDG W03100 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017:
The achieved MDAs are based on the best available counting geometry and detector efficiency for the matrix analyzed. The data are accepted for reporting with the MDAs achieved. Except as noted, the LCS, batch blank, samples and sample duplicate (B0XKL3) results are within contractual requirements.

Gas Proportional Counting
Total Strontium by method RICH-RC-5006:
The achieved MDAs do not meet the CRDL for samples B0XKL3 and B0XKL3 duplicate analysis due to insufficient sample volume. The data are accepted for reporting with the MDAs achieved. Except as noted, the LCS, batch blank, samples and sample duplicate (B0XKL3) results are within contractual requirements.

Alpha Spectroscopy
Plutonium-238, -239/40 by method RICH-RC-5010:
The LCS, batch blank, samples and sample duplicate (B0XKL3) results are within contractual requirements.

Americium-241 by method RICH-RC-5080:
The LCS, batch blank, samples and sample duplicate (B0XKL3) results are within contractual requirements.

Liquid Scintillation Counting
Technetium-99 by method RICH-RC-5078:
The LCS, batch blank, samples, sample duplicate (B0XKL3) and sample matrix spike (B0XKL3) results are within contractual requirements.

Nickel-63 by method RICH-RC-5069:
The LCS, batch blank, samples, sample duplicate (B0XKL3) and sample matrix spike (B0XKL3) results are within contractual requirements.

Carbon-14 by method RICH-RC-5022:
The LCS, batch blank, samples and sample duplicate (B0XKL3) 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

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SAMPLE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1	9D959V10	**MATRIX:**	WATER
CLIENT ID:	B0XKL3		**DATE RECEIVED:**	2/29/2000 3:35:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
PU-238	0.00E+00	U	0.0E+00	1.7E-01	1.90E-01	pCi/L	89.63%	RICHRC5010	D959V1	0062182
PU239/40	-5.60E-03	U	1.1E-02	1.1E-02	2.82E-01	pCi/L	89.63%	RICHRC5010	D959V1	0062182
AM-241	-1.24E-02	U	1.8E-02	1.8E-02	3.55E-01	pCi/L	101.95%	RICHRC5072	D959V1	0062183
BA-133	3.02E+00	U	4.9E+00	4.9E+00	9.60E+00	pCi/L		RICHRC5017	D959V1	0062184
CO-60	6.19E-01	U	6.0E+00	6.0E+00	1.19E+01	pCi/L		RICHRC5017	D959V1	0062184
CS-137	-7.16E-01	U	4.5E+00	4.5E+00	8.31E+00	pCi/L		RICHRC5017	D959V1	0062184
EU-152	2.06E+01	U	1.3E+01	1.3E+01	2.70E+01	pCi/L		RICHRC5017	D959V1	0062184
EU-154	3.72E+00	U	1.2E+01	1.2E+01	2.60E+01	pCi/L		RICHRC5017	D959V1	0062184
EU-155	-9.63E-01	U	8.6E+00	8.6E+00	1.52E+01	pCi/L		RICHRC5017	D959V1	0062184
STRONTIUM	2.09E+00	U	3.1E+00	3.1E+00	6.64E+00	pCi/L	94.20%	RICHRC5006	D959V1	0062185
C-14	-3.91E+00	U	2.9E-01	1.1E+01	1.62E+01	pCi/L	100.00%	RICHRC5022	D959V1	0062177
NI-63	4.85E+01		2.8E+00	1.8E+01	2.72E+01	pCi/L	90.80%	RICHRC5069	D959V1	0062178
TC-99	-2.54E-01	U	1.3E-02	1.1E+01	1.25E+01	pCi/L	100.00%	RICHRC5078	D959V1	0062180

Number of Results: 13

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1 D959V18R	**MATRIX:**	WATER
CLIENT ID:	B0XKL3	**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
C-14	-7.00E+00	U	5.3E-01	1.1E+01	1.62E+01	pCi/L	100.00%	RICHRC5022	-3.91E+00	56.58%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1 D959V1AR	**MATRIX:**	WATER
CLIENT ID:	B0XKL3	**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
NI-63	4.71E+01		2.7E+00	1.6E+01	2.49E+01	pCi/L	98.76%	RICHRC5069	4.85E+01	2.77%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**		**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1	D959V1DR	**MATRIX:**	WATER
CLIENT ID:	B0XKL3		**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10			

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
TC-99	-9.03E-01	U	4.6E-02	1.1E+01	1.25E+01	pCi/L	100.00%	RICHRC5078	-2.54E-01	112.32%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1 D959V1ER	**MATRIX:**	WATER
CLIENT ID:	B0XKL3	**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
PU-238	0.00E+00	U	0.0E+00	1.6E-01	1.79E-01	pCi/L	95.50%	RICHRC5010	0.00E+00	0.00%
PU239/40	0.00E+00	U	0.0E+00	1.6E-01	1.79E-01	pCi/L	95.50%	RICHRC5010	-5.60E-03	200.00%

Number of Results: 2

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1 D959V1FR	**MATRIX:**	WATER
CLIENT ID:	B0XKL3	**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
AM-241	-1.88E-02	U	2.2E-02	2.2E-02	3.90E-01	pCi/L	105.91%	RICHRC5072	-1.24E-02	40.65%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1 D959V1GR	**MATRIX:**	WATER
CLIENT ID:	B0XKL3	**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
BA-133	3.19E+00	U	6.4E+00	6.4E+00	1.19E+01	pCi/L		RICHRC5017	3.02E+00	5.42%
CO-60	-1.27E+00	U	6.6E+00	6.6E+00	1.22E+01	pCi/L		RICHRC5017	6.19E-01	581.67%
CS-137	-5.36E+00	U	5.6E+00	5.6E+00	8.95E+00	pCi/L		RICHRC5017	-7.16E-01	152.90%
EU-152	1.44E+01	U	1.6E+01	1.6E+01	3.01E+01	pCi/L		RICHRC5017	2.06E+01	35.61%
EU-154	5.87E+00	U	1.8E+01	1.8E+01	3.63E+01	pCi/L		RICHRC5017	3.72E+00	44.83%
EU-155	6.21E+00	U	1.3E+01	1.3E+01	2.27E+01	pCi/L		RICHRC5017	-9.63E-01	273.33%

Number of Results: 6

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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DUPLICATE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LOT,RPT DB ID:	J0C010116-1 D959V1HR	**MATRIX:**	WATER
CLIENT ID:	B0XKL3	**DATE RECEIVED:**	2/29/2000 3:35:00 P
ORIG LAB ID:	9D959V10		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
STRONTIUM	2.15E+00	U	3.2E+00	3.3E+00	7.00E+00	pCi/L	97.70%	RICHRC5006	2.09E+00	2.98%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-177 D96QP11X **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
C-14	-1.18E+00	U	8.7E-02	5.4E+00	8.10E+00	pCi/L	100.00%	RICHRC5022	D96QP	0062177

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-178 D96QT11B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
NI-63	6.16E+00	J	3.5E-01	2.0E+00	3.08E+00	pCi/L	97.50%	RICHRC5069	D96QT	0062178

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-180 D96R211B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
TC-99	-3.12E+00	U	1.6E-01	1.1E+01	1.25E+01	pCi/L	100.00%	RICHRC5078	D96R21	0062180

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-182 D96R511B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
PU-238	-2.72E-03	U	5.4E-03	5.5E-03	1.37E-01	pCi/L	92.86%	RICHRC5010	D96R51	0062182
PU239/40	0.00E+00	U	0.0E+00	8.3E-02	9.19E-02	pCi/L	92.86%	RICHRC5010	D96R51	0062182

Number of Results: 2

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-183 D96R711B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
AM-241	0.00E+00	U	0.0E+00	9.3E-02	1.03E-01	pCi/L	110.48%	RICHRC5072	D96R71	0062183

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-184 D96R811B **MATRIX:** Water

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
BA-133	-3.16E+00	U	4.6E+00	4.6E+00	7.48E+00	pCi/L		RICHRC5017	D96R81	0062184
CO-60	1.75E+00	U	4.3E+00	4.3E+00	9.26E+00	pCi/L		RICHRC5017	D96R81	0062184
CS-137	-1.95E+00	U	3.4E+00	3.4E+00	5.83E+00	pCi/L		RICHRC5017	D96R81	0062184
EU-152	1.62E-01	U	1.0E+01	1.0E+01	1.85E+01	pCi/L		RICHRC5017	D96R81	0062184
EU-154	-1.22E+00	U	8.9E+00	8.9E+00	1.81E+01	pCi/L		RICHRC5017	D96R81	0062184
EU-155	-5.85E-01	U	7.5E+00	7.5E+00	1.34E+01	pCi/L		RICHRC5017	D96R81	0062184

Number of Results: 6

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

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BLANK RESULTS

LAB NAME: STL Richland **SDG /RPT GRP:** W03100 / 10216

LOT,RPT DB ID: J0C020000-185 D96RA11B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT-CH
STRONTIUM	-8.13E-02	U	3.3E-01	3.3E-01	8.31E-01	pCi/L	70.70%	RICHRC5006	D96RA	0062185

Number of Results: 1

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL

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LABORATORY CONTROL SAMPLE

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96QP12S	**MATRIX:**	WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
C-14	3.91E+01	J	2.1E+00	7.4E+00	8.09E+00	pCi/L	100.00%	4.56E+01	85.63%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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LABORATORY CONTROL SAMPLE

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96QT12S	**MATRIX:**	WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
NI-63	3.44E+02		5.1E+00	2.6E+01	3.16E+00	pCi/L	95.39%	3.17E+02	108.48%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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LABORATORY CONTROL SAMPLE

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96R212S	**MATRIX:**	WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
TC-99	4.65E+02		1.0E+01	4.4E+01	1.25E+01	pCi/L	100.00%	5.41E+02	85.98%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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LABORATORY CONTROL SAMPLE

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96R512S	**MATRIX:**	WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
PU239/40	4.77E+00		7.9E-01	1.1E+00	1.32E-01	pCi/L	97.06%	4.51E+00	105.79%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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LABORATORY CONTROL SAMPLE

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96R712S	**MATRIX:**	WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
AM-241	2.41E+01		2.0E+00	4.6E+00	2.11E-01	pCi/L	107.28%	2.28E+01	105.53%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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LABORATORY CONTROL SAMPLE

LAB NAME:	STL Richland	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96R812S	**MATRIX:**	Water

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
CO-60	6.57E+01		1.5E+01	1.5E+01	9.74E+00	pCi/L		7.68E+01	85.55%
CS-137	5.30E+01		1.5E+01	1.5E+01	1.03E+01	pCi/L		5.02E+01	105.67%
EU-152	1.47E+02		3.3E+01	3.3E+01	2.59E+01	pCi/L		1.54E+02	95.63%

Number of Results: 3

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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LABORATORY CONTROL SAMPLE

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D96RA12S	**MATRIX:**	WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	1.26E+01		1.3E+00	3.6E+00	8.91E-01	pCi/L	68.60%	1.35E+01	93.68%

Number of Results: 1

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

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MATRIX SPIKE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D959V19W	**MATRIX:**	WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
NI-63	2.88E+03		4.3E+01	2.2E+02	2.71E+01	pCi/L	4.85E+01	2.58E+03	111.50%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Quanterra

MATRIX SPIKE RESULTS

LAB NAME:	**STL Richland**	**SDG: /RPT GRP:**	W03100 / 10216
LAB SAMPLE ID:	D959V1CW	**MATRIX:**	WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
TC-99	3.17E+03		2.9E+01	2.4E+02	1.25E+01	pCi/L	-2.54E-01	3.61E+03	87.80%

Number of Results: 1

*Spike Result Corrected For Sample Result

Result = IDL When Not Detecte

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Quanterra

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: J0C010116
Client ID: BNI
Due Date: 3-31-00
QC Batch Number: 0062183 SDG Number: W03100
Method Test Parameter: Am241 (Sv)
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. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other 1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			✓
6. Were units checked?	✓			

Comments on any "No" response: _____

First Level Review: Pam Kenagy Date: 3-16-00

Second Level Review: Julie Waddell Date: 3/29/00

LS-038, Rev.5, 4/99

Quanterr.

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: 30C010116
Client ID: BHI
Due Date: 3-21-00
QC Batch Number: CC62182 SDG Number: WP3107
Method Test Parameter: Plutonium
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. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other 1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Pam Kenitzer Date: 3-16-00

Second Level Review: Jackie P. Waddell Date: 3/21/00

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Data Review Checklist
RADIOCHEMISTRY

Lot Number: J0C0116				
Client ID: BHT				
Due Date: 3-21-00				
QC Batch Number: 062184			SDG Number: J03100	
Method Test Parameter: Y				
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. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other 1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			✓
6. Were units checked?	✓			

Comments on any "No" response: _____

First Level Review: Pam Kenitzer Date: 3-8-00

Second Level Review: Jackie Waddell Date: 3/9/00

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Quanterra

Data Review Checklist
RADIOCHEMISTRY

Priority 0

Lot Number: JCC10116
Client ID: BHI
Due Date: 3-21-00
QC Batch Number: 00621B5 SDG Number: W03100
Method Test Parameter: Total SR
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. Does the blank result meet the Contract criteria?	✓			✓
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			✓
D. Other 1. Are all Nonconformances included and noted? #1461	✓			✓
2. Are all required forms filled out?	✓			✓
3. Was the correct methodology used?	✓			✓
4. Was transcription checked?	✓			✓
5. Were all calculations checked at a minimum frequency?	✓			✓
6. Were units checked?	✓			✓

Comments on any "No" response: NCM – MDAs > CRDL due to insufficient volume received.

First Level Review: [signature] Date: 3/1/00

Second Level Review: [signature] Date: 3/13/00

Quanterr

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: J0C010116
Client ID: BHI
Due Date: 3-21-00
QC Batch Number: 0062177 SDG Number: W03100
Method Test Parameter: C-14
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. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other 1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Pam Kennedy Date: 3-16-00

Second Level Review: Jackie Waddell Date: 3/17/00

Quanterr

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: 30C010116
Client ID: BNI
Due Date: 3-21-00
QC Batch Number: 006218 78 SDG Number: WQ3100
Method Test Parameter: Nickel 63
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. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?	✓		N/A	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other				
1. Are all Nonconformances included and noted?	✓			
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			

Comments on any "No" response: ~~MDA > CRDL - insuf SA~~ W 4/5/00
3K for SAFB00-014 - use solid CRDL
30 pCi/g

First Level Review: Pam Kenitzer Date: 4-5-00
Second Level Review: Peter Waddell Date: 4/5/00

LS-038, Rev.5, 4/99

Quanterra

Data Review Checklist
RADIOCHEMISTRY

Priority 0

Lot Number: JOC010116
Client ID: BHI
Due Date: 3-21-00
QC Batch Number: 00021180 SDG Number: W03100
Method Test Parameter: TC-99
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. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the 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. Do the MS/MSD results and yields meet acceptance criteria?	✓			
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other 1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			

Comments on any "No" response: _____

First Level Review: Pam Kenitzer Date: 3-16-00

Second Level Review: Robert Wardell Date: 3/21/00

LS-038, Rev.5, 4/99

CHAIN OF CUSTODY

Q-27040

Bechtel Hanford Inc. — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-014-06 | Page 1 of 1

Collector: Falberg/Winterrose	Company Contact: J Adler	Telephone No.: 373-4316	Project Coordinator: TRENT, SJ
Project Designation: 105-F/DR Phase III Below-grade Areas Sampling and Analy	Sampling Location: 105F		SAF No.: B00-014
Ice Chest No.: ERC-97-079	Field Logbook No.: EL 1424	COA: R105F32870	Method of Shipment: ~~Quanterra~~ Hand Delivered
Shipped To: Quanterra Incorporated	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Price Code: 7L — Data Turnaround: 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SDG W03100

SAMPLE ANALYSIS

Due 3-27-00 2431-00 JOC010118 6

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Activity Scan	ICP Metals - 6010A (Supertrace) (Lead); Mercury - 7470 - (CV)	Technetium-99	See item (1) in Special Instructions.
				None	P	1	20mL				
				HNO3 to pH <2	P	1	500mL				
				HCl to pH <2	P	1	1000mL				
				HNO3 to pH <2	P	1	1000mL				
B0XKL3 D959V	Water	2-29-00	1335					X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Falberg / R. Falberg	2-29-00 1535	2100 CPM BW Kreutz BWK	2-29-00 1535
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy(Water) {Cobalt-60}; Gamma Spec - Add-on {Barium-133}; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Americium-241; Carbon-14; Nickel-63

Non Rad Sample / No activity report.

Matrix *

S=Soil
SE=Sediment
SO=Solid
S=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

0037

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 2/29/00 1535 SDG#: W03100

Work Order Number: JOC010116 SAF#: B00-014

Shipping Container ID: ERC-97-079 Chain of Custody #: B00-014-06

1. Outermost shipping container damaged? Yes [ ] No [✓]

2. Custody Seals on shipping container intact? Yes [✓] No [ ]

3. Custody Seals dated and signed? Yes [✓] No [ ]

4. Chain-of-Custody record present? Yes [✓] No [ ]

5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No [ ]
   - Project name or number Yes [✓] No [ ]
   - Sample date/time for each sample Yes [✓] No [ ]
   - Container types, sizes and number of containers Yes [✓] No [ ]
   - Short description of sample, i.e., matrix Yes [✓] No [ ]
   - Analyses requested Yes [✓] No [ ]
   - Preservation used or "none" or N/A if not applicable Yes [✓] No [ ]
   - Date and time of relinquish and receipt Yes [✓] No [ ]
   - Signatures of those persons relinquishing and receiving Yes [✓] No [ ]

6. Sample numbers on chain of custody match those on sample containers? (4) Yes [✓] No [ ]

7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No [ ]

8. Cooler temperature: 4°

9. Vermiculite/packing materials is: Wet [✓] Dry [ ]

10. Samples have: [✓] tape ____ hazard labels
    [✓] custody seals [✓] appropriate sample labels

11. Samples are: [✓] in good condition ____ leaking
    ____ broken ____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [ ] No [ ]

13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: [signature] Date: 2/29/00

Telephone/Fax/E:mailed to: _____ On _____ By _____

Client Sample Screening Results

01-Mar-00

(B) 3/1/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BH	B0XKL3D959V		2/29/2000 4:20:00 PM	QUAD22D	3/1/2000 10:15:31 AM	B0XKL3D959V	30	9	0.181666667	55	0.545
	D959V	LIQUID		Bkg:	3/1/2000 2:35:57 AM	BKG	600	71	0.118333333	773	1.28833333

Anl Date: 3/1/00 Tot Sa, Alq: 2.00E+00 , 1.00E+01 Alp; (Dpm/ 5.22E-01 (uCi/ 4.71E-05 (pCi/ 2.35E+01 + 2.4E+01 CAT 1.1E+00 Lab Alq

Ppt mg: 0 Units: L , ml Bet; Alq): 9.13E-01 Sa): 8.22E-05 L|g): 4.11E+01 + 2.1E+01 1 1.2E+00 L|g

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

Quanterra Incorporated
Information Sheet Rad Prep

****
* QC BATCH: 0062183 *
****

PRIORITY
7 day

Run Date: 3/02/00
Time: 9:24:26

Page: 1

W03100

SX: Americium-241 by Alpha Spec
8I: Am PrpRC5016, SepRC5072(5003)
5I: CLIENT: HANFORD

Analytical Due Date: 3/21/00

Project Manager: JW2

Lot# / Work Order	Client	Analyt Matrix	Due	Client Aliquot	Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 X D959V-1-0F	WATER	3/21/00		Bechtel Hanford, .0000		.000	2/29/00 13:35		1	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:	WATER												
J0C010116-001 D959V-1-06	WATER	3/21/00		Bechtel Hanford, .0000		.000	2/29/00 13:35		1	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:	WATER												
J0C020000-183 B D96R7-1-01	WATER	3/21/00		Bechtel Hanford,			2/29/00 13:35		1	pCi/L	**NA	**NA	JW2
Comments:													
J0C020000-183 C D96R7-1-02	WATER	3/21/00		Bechtel Hanford,			2/29/00 13:35		1	pCi/L	**NA	**NA	JW2
Comments:													

Total Number of Samples In Batch: 00004

Batch Information: Dry Wt: Decay Correct: Y Blank Sub: None Call In:

Uncert: Both *Sigma: 1.960* ODR: Target List + Other Detected

	BLANK CRDL		Tracer Yield		Type	QC Control Limits
Americium 241	1	Americium 243	(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.

0040

COC Signature Page

W03100

Lot or Batch #: 00L2183

	Initials/Date	Procedure #
Released By	[illegible] 3-2-00	Richrc0009
Received	EPS 3/2/00	RICHRC5016.1+5072.1
Released By	EPS 3/9/00	n/a
Received	[illegible] 03/09/00	RICH 5072.1
Released By	[illegible] 03-14-00	n/a
Received	SD 3/14/00	RC5003-2
Released By	SD 3/15/00	n/a
Received	CD 3/15/00	[illegible]
Released By	CD 3/15/00	n/a
Received	JM 3-15-00	Redcalc V2.7.1
Released By	JM 3-15-00	n/a
Received	PK 3-15-00	RICHRC0002
Released By	PK 3-17-00	n/a
Received		

RC-131, Rev.1, 6/99

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0062182 *
* *
****

W03100

PRIORITY
3 day

Run Date: 3/02/00
Time: 9:23:59

Page: 1

SO: Plutonium-238,239/40 by Alpha Spec
6D: Pu PrpRC5016, SepRC5010(5039)
5I: CLIENT: HANFORD

Analytical Due Date: 3/21/00

Project Manager: JW2

Lot# / Work Order	Client	Analyt Matrix	Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 X D959V-1-0E	WATER	3/21/00		Bechtel Hanford, .0000	.000	2/29/00	13:35			pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:	WATER												
J0C010116-001 D959V-1-04	WATER	3/21/00		Bechtel Hanford, .0000	.000	2/29/00	13:35			pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:	WATER												
J0C020000-182 B D96R5-1-01	WATER	3/21/00		Bechtel Hanford,		2/29/00	13:35			pCi/L	**NA	**NA	JW2
Comments:													
J0C020000-182 C D96R5-1-02	WATER	3/21/00		Bechtel Hanford,		2/29/00	13:35		1	pCi/L	**NA	**NA	JW2
Comments:													

Total Number of Samples In Batch: 00004

Batch Information:

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

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Plutonium 238	1	Plutonium 242	(020-105)	RPD	
Plutonium 239/4	1			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.

0042

COC Signature Page

W03100

Lot or Batch #: OOL0218O	Initials/Date	Procedure #
Released By	RH 3-2-00	RICHRC0009
Received	EPS 3/2/00	RICHRC5016.1 + ~~5072.1~~ EPS 2/8/00
Released By	EPS 3/8/00	n/a
Received	Fax 03-08-00	RICH 5010
Released By	Fax 03-13-00	n/a
Received	SD 3/13/00	RC5039-2
Released By	SD 3/14/00	n/a
Received	CS 3/14/01	RICHRC0008K1
Released By	CS 3/15/00	n/a
Received	JM 3-15-00	Radcalc V2.7.1
Released By	JM 3-15-00	n/a
Received	PK 3-15-00	RICHRC0002
Released By	PK 3-17-00	n/a
Received		

RC-131, Rev.1, 6/99

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

PRIORITY SEQUENT...

Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0062184 *
* *
****

W03100

TA: Gamma by HPGE
AW: Gamma PrpRC5017
5I: CLIENT: HANPORD

PRIORITY 7day

Run Date: 3/02/00
Time: 9:24:57

Page: 1

Analytical Due Date: 3/21/00

Project Manager: JW2

Lot# / Work Order	Client	Analyt Matrix	Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 X D959V-1-0G	WATER	3/21/00		Bechtel Hanford, .0000	.000	2/29/00 13:35		--	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:	WATER											
J0C010116-001 D959V-1-01	WATER	3/21/00		Bechtel Hanford, .0000	.000	2/29/00 13:35		--	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:	WATER											
J0C020000-184 B D96R8-1-01	WATER	3/21/00		Bechtel Hanford,		2/29/00 13:35		--	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-184 C D96R8-1-02	WATER	3/21/00		Bechtel Hanford,		2/29/00 13:35		6	pCi/L	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00004

Batch Information: Dry Wt: Decay Correct: Y Blank Sub: None Call In:

Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

BLANK CRDL		Tracer Yield	Type	QC Control Limits
Cobalt 58	--		RPD	
Cobalt 60	25		RPD	
Cesium 137	15		RPD	
Europium 152	50		RPD	
Europium 154	50		RPD	
Europium 155	50		RPD	
Iron 59	--		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.

0044

COC Signature Page

W03100

Lot or Batch #: 0002184

	Initials/Date	Procedure #
Released By	K. Ashburn	3-2-00 RichRC0009
Received	EPS 3/2/00	RICHRC5016, 15017.1
Released By	EPS 3/2/00	n/a
Received	CM 3/2/00	RICHRD0007K2
Released By	M 3/2/00	n/a
Received	PK 3:00	RICHRC0007
Released By	PK 3-900	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

RC-131, Rev.1, 6/99

RQC053

Parent Batch:
Associated Batches:
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Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0062185 *
* *
****

W031C0

PRIORITY
21day

Run Date: 3/02/00
Time: 9:25:38

Page: 1

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

Analytical Due Date: 3/21/00
Project Manager: JW2

Lot# / Work Order	Client	Analyt Due / Matrix	Client / Aliquot	Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 X D959V-1-0H	WATER	3/21/00	Bechtel Hanford, .0000		.000	2/29/00 13:35		2	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C010116-001 D959V-1-02	WATER	3/21/00	Bechtel Hanford, .0000		.000	2/29/00 13:35		2	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C020000-185 B D96RA-1-01	WATER	3/21/00	Bechtel Hanford,			2/29/00 13:35		2	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-185 C D96RA-1-02	WATER	3/21/00	Bechtel Hanford,			2/29/00 13:35		2	pCi/L	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00004

Batch Information: Dry Wt: Decay Correct: Y Blank Sub: None Call In:

Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

	BLANK CRDL	Tracer Yield		Type	QC Control Limits
Strontium 90	2	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.

0046

COC Signature Page

WO3100

Lot or Batch #: OCC0185

	Initials/Date	Procedure #
Released By	[illegible] 3-2-00	Richl CC0009
Received	am 3-8-00	RCHRC 5006
Released By	am 3-9-00	n/a
Received	CS 3/9/00	RCHRC0003R2
Released By	CS 3/6/00	n/a
Received	JM 3-10-00	RADCALC V2.7.1
Released By	JM 3-10-00	n/a
Received	JW 3/10/00	RICHRC0002R2
Released By	JW 3/11/00	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

RC-131, Rev.1, 6/99

RQC053

Parent Batch:
Associated Batches:
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PRIORITY 21day

Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0062177 *
* *
****

W03100

S3: Carbon-14 by Liquid Scint
5S: C-14 Prp/SepRC5022
5I: CLIENT: HANFORD

PRIORITY 21day

Run Date: 3/02/00
Time: 9:21:47

Page: 1

Analytical Due Date: 3/21/00

Project Manager: JW2

Lot# / Work Order	Client	Analyt Due / Matrix	Client / Aliquot	Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 D959V-1-03	WATER	3/21/00	Bechtel .0000	Hanford,	.000	2/29/00 13:35		200	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C010116-001 X D959V-1-08	WATER	3/21/00	Bechtel .0000	Hanford,	.000	2/29/00 13:35		200	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C020000-177 B D96QP-1-01	WATER	3/21/00	Bechtel	Hanford,		2/29/00 13:35		200	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-177 C D96QP-1-02	WATER	3/21/00	Bechtel	Hanford,		2/29/00 13:35		200	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-177 B D96QP-1-03	WATER	3/21/00	Bechtel	Hanford,		2/29/00 13:35		200	pCi/L	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00005

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		Tracer Yield	Type	QC Control Limits
Carbon 14	200		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.

0048

COC Signature Page

WO3100

Lot or Batch #: OXU2177

	Initials/Date	Procedure #
Released By	KH 3200	Richrc0009
Received	EPS 3/2/00	RICHRC 5016.1
Released By	EPS 3/2/00	n/a
Received	DM 3-2-00	RICHRC 5022
Released By	DM 3-10-00	n/a
Received	DD 3/10/2000	RICHRD0001Rev1
Released By	WB 3/13/00	n/a
Received	JM 3-13-00	RADcalc V2.7.1
Released By	JM 3-14-00	n/a
Received	PK 3-15-00	RICHRC0002
Released By	PK 3-17-00	n/a
Received		
Released By		n/a
Received		

RC-131, Rev.1, 6/99

RQC053

Parent Batch:
Associated Batches:
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Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0062178 *
* *
****

W03100

PRIORITY 7day

Run Date: 3/02/00
Time: 9:22:53

Page: 1

S4: Nickel by ICP and Nickel-63 by Liquid Sc Analytical Due Date: 3/21/00
AA: Ni-63 PrpRC5016, SepRC5069
5I: CLIENT: HANFORD Project Manager: JW2

Lot# / Work Order	Client	Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 X D959V-1-0A	WATER	WATER	3/21/00	Bechtel Hanford, .0000	.000	2/29/00 13:35		15	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C010116-001 D959V-1-05	WATER	WATER	3/21/00	Bechtel Hanford, .0000	.000	2/29/00 13:35		15	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C010116-001 S D959V-1-09	WATER	WATER	3/21/00	Bechtel Hanford, .0000	.000	2/29/00 13:35		15	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments: WATER												
J0C020000-178 B D96QT-1-01	WATER	WATER	3/21/00	Bechtel Hanford,		2/29/00 13:35		15	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-178 C D96QT-1-02	WATER	WATER	3/21/00	Bechtel Hanford,		2/29/00 13:35		15	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-178 B D96QT-1-03	WATER	WATER	3/21/00	Bechtel Hanford,		2/29/00 13:35		15	pCi/L	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00006

Batch Information: Dry Wt: Decay Correct: Y Blank Sub: None Call In:

Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Nickel 63	15	Nickel	(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.

0050

COC Signature Page
WO3100

Lot or Batch #: 002178

	Initials/Date	Procedure #
Released By	KAH 3-2-00	RICHRC0009
Received	ERS 3/2/00	RICHRC5016.1
Released By	ERS 3/8/00	n/a
Received	AB 3/8/00	RC5069
Released By	AB 3/29/00	n/a
Received	M 3/29/00	RICHRD0001
Released By	CD 3/31/00	n/a
Received	JM 4-3-00	RADCALC V2.7.1
Released By	JM 4-4-00	n/a
Received	PK 4-5-00	RICHRC0002
Released By	PK 4-5-00	n/a
Received		
Released By		n/a
Received		

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RQC053

Parent Batch:
Associated Batches:
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Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0062180 *
* *
****

W03100

14 day PRIORITY

Run Date: 3/02/00
Time: 9:23:31

Page: 1

S5: Technetium-99 by Liquid Scint
FP: Tc-99 Prp/SepRC5065
5I: CLIENT: HANFORD

Analytical Due Date: 3/21/00

Project Manager: JW2

Lot# / Work Order	Client	Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0C010116-001 S D959V-1-0C	WATER	WATER	3/21/00	Bechtel Hanford, .0000	.000	2/29/00 13:35			pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:												
J0C010116-001 X D959V-1-0D	WATER	WATER	3/21/00	Bechtel Hanford, .0000	.000	2/29/00 13:35		15	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:												
J0C010116-001 D959V-1-07	WATER	WATER	3/21/00	Bechtel Hanford, .0000	.000	2/29/00 13:35		15	pCi/L	**NYS 31-02/00	**NYS	JW2
Comments:												
J0C020000-180 B D96R2-1-01	WATER	WATER	3/21/00	Bechtel Hanford,		2/29/00 13:35		15	pCi/L	**NA	**NA	JW2
Comments:												
J0C020000-180 C D96R2-1-02	WATER	WATER	3/21/00	Bechtel Hanford,		2/29/00 13:35		15	pCi/L	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00005

Batch Information: Dry Wt: Decay Correct: Y Blank Sub: None Call In:

Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

	BLANK CRDL	Tracer Yield	Type	QC Control Limits RPD
Technetium 99	15			

** 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.

0052

COC Signature Page

WW3150

Lot or Batch #: WW2180	Initials/Date	Procedure #
Released By	MH 3.7.00	RC00109
Received	MH 3.4.00	Rich RC 5065
Released By	MH 3.8.00	n/a
Received	MH 3/9/00	RICHR00001
Released By	CD 3/13/00	n/a
Received	JM 3-13-00	RADCALC V2.7.1
Released By	JM 3-13-00	n/a
Received	PK 3-15-00	RICHR0000 v
Released By	PK 3-17-00	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

RC-131, Rev.1, 6/99

ANALYTICAL REPORT

PROJECT NO. 105-F/DR PHASE3

B00-014

Lot #: F0C030106
SDG #: W03100

Accounts Payable

Bechtel Hanford, Inc.

SEVERN TRENT LABORATORIES, INC.

MARTI WARD
Project Manager

April 6, 2000

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

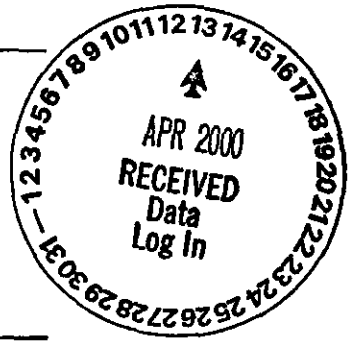
CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

April 7, 2000

Attention: Joan Kessner

Quote Number	:	33833
SAF	:	B00-014
SDG	:	W03100
Number of Samples	:	one (1)
Sample Matrix	:	Water
Data Deliverable	:	Summary
Date SDG Closed	:	February 29, 2000



II. Introduction

On March 1, 2000, one (1) "water" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The samples were received at the St. Louis lab on 3/2/00 at a temperature of 2 degrees C. See the attached Sample Summary for a listing of Client Ids and their associated Lab numbers.

III. 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: ICP Metals - (SuperTrace Lead, Chromium)
Mercury - 7470 - (CV)

Deviation from Request: None

Bechtel Hanford Incorporated
April 7, 2000
Quote Number: 33833
SDG: W03100

IV. Definitions

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

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
MS- Matrix Spike.
MSD- Matrix Spike Duplicate.

V. Comments

General:

The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

The EDD for this SDG will be sent at a later date. The switch to our new LIMs system required a re-programming of the EDD software. That is currently in process.

Chromium was added to the requested list of compounds by the client after the samples had been received.

Metals:

A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Spike Duplicate were analyzed with each preparation batch per the protocol for this analysis.

Due to limited sample volume, the matrix spike and matrix spike duplicate were analyzed with a five fold dilution for the ICP metals. Recoveries were acceptable.

Bechtel Hanford Incorporated
April 7, 2000
Quote Number: 33833
SDG: W03100
Page 3

I certify that this Summary 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:

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F0C030106

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D9801	001	B0XKL3	02/29/00	13:35

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- *All calculations are performed before rounding to avoid round-off errors in calculated results.*
- Results noted as "ND" were not detected at or above the stated limit.
- *This report must not be reproduced, except in full, without the written approval of the laboratory.*
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

F0C030106

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 3/03/00
Time: 7:07:23
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 105-F/DR PHASE3
REPORT TO: Accounts Payable
P.O. NUMBER:,
SITE: B00-014
AMOUNT REC"D: 500P
STORAGE LOC: S15F
LOT COMMENTS: Client requires QC, even if a lesser vol
MATRIX: WATER
SAMPLE ID: B0XKL3
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33833
LAB ID: F-0C030106-001
WORK ORDER: D9801
RECEIVING DATE: 2/29/00
SAMPLING DATE: 2/29/00
ANALYTICAL DUE DATE: 3/15/00N
REPORT DUE DATE: 3/21/00
PRIORITY: 15
SAMPLING TIME: 13:35
RECEIVING TIME: 15:35
SDG# : W03100

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Waters MT6010_L PB (I-05-QM-01) D9801 Protocol: A QC Program: STANDARD TEST SET	06	3/03/00	0/00/00	8/27/00
Mercury (7470A, Cold Vapor) - Liquid METALS, TOTAL (Method exclusive) - Waters M7470_L HG (I-19-08-01) D9801 Protocol: A QC Program: STANDARD TEST SET	06	3/03/00	0/00/00	3/28/00

PSL20300 QUANTERRA INCORPORATED Run Date: 3/03/00
Page 1 CLIENT ANALYSIS SUMMARY Time: 7:07:23
Quanterra - St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 33833
PROJECT MANAGER: MARTI WARD LAB ID: F-0C030106-001-D
PROJECT #: 105-F/DR PHASE3 WORK ORDER: D9801 MSD
REPORT TO: Accounts Payable RECEIVING DATE: 2/29/00
P.O. NUMBER: SAMPLING DATE: 2/29/00
SITE: B00-014 ANALYTICAL DUE DATE: 3/15/00N
AMOUNT REC"D: 500P REPORT DUE DATE: 3/21/00
STORAGE LOC: S15F PRIORITY: 15
LOT COMMENTS: Client requires QC, even if a lesser vol SAMPLING TIME: 13:35
MATRIX: WATER RECEIVING TIME: 15:35
SAMPLE ID: B0XKL3
QC PACKAGE: Special Report - see checklist SDG# : W03100
SAMPLE COMMENTS:

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace)	06	3/03/00	0/00/00	8/27/00
METALS, TOTAL - Waters				
MT6010_L PB				
(I-05-QM-01) D9801 Protocol: A QC Program: STANDARD TEST SET				
Mercury (7470A, Cold Vapor) - Liquid	06	3/03/00	0/00/00	3/28/00
METALS, TOTAL (Method exclusive) - Waters				
M7470_L HG				
(I-19-08-01) D9801 Protocol: A QC Program: STANDARD TEST SET				

PSL20300 QUANTERRA INCORPORATED Run Date: 3/03/00
Page 1 CLIENT ANALYSIS SUMMARY Time: 7:07:23
Quanterra - St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 33833
PROJECT MANAGER: MARTI WARD LAB ID: F-0C030106-001-S
PROJECT #: 105-F/DR PHASE3 WORK ORDER: D9801 MS
REPORT TO: Accounts Payable RECEIVING DATE: 2/29/00
P.O. NUMBER: SAMPLING DATE: 2/29/00
SITE: B00-014 ANALYTICAL DUE DATE: 3/15/00N
AMOUNT REC"D: 500P REPORT DUE DATE: 3/21/00
STORAGE LOC: S15F PRIORITY: 15
LOT COMMENTS: Client requires QC, even if a lesser vol SAMPLING TIME: 13:35
MATRIX: WATER RECEIVING TIME: 15:35
SAMPLE ID: B0XKL3
QC PACKAGE: Special Report - see checklist SDG# : W03100
SAMPLE COMMENTS:

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace)	06	3/03/00	0/00/00	8/27/00
METALS, TOTAL - Waters				
MT6010_L PB				
(I-05-QM-01) D9801 Protocol: A QC Program: STANDARD TEST SET				
Mercury (7470A, Cold Vapor) - Liquid	06	3/03/00	0/00/00	3/28/00
METALS, TOTAL (Method exclusive) - Waters				
M7470_L HG				
(I-19-08-01) D9801 Protocol: A QC Program: STANDARD TEST SET				

Q-27040 CW0000069 temp 2°

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-014-06	Page 1 of 1
Collector: Falberg/Winterrose	Company Contact: J Adler	Telephone No.: 373-4316	Project Coordinator: TRENT, SJ	Price Code: 7L; Air Quality ☐	Data Turnaround: 21 Days
Project Designation: 105-F/DR Phase III Below-grade Areas Sampling and Analy	Sampling Location: 105F		SAF No.: B00-014	
Ice Chest No.: ERC-97-079	Field Logbook No.: EL 1424	COA: R105F32870	Method of Shipment: ~~Quanterra~~ Hand Delivered
Shipped To: Quanterra Incorporated	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Quanterra

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SDG W03100

SAMPLE ANALYSIS Due 3-27 24H31-00 JOC0101186

Preservation	None	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2						
Type of Container	P	P	P	P						
No. of Container(s)	1	1	1	1						
Volume	20mL	500mL	1000mL	1000mL						
	Activity Scan	ICP Metals - 6010A (Supervisor) (Lead); Mercury - 7470 - (CV)	Technetium-99	See item (1) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time							
B0XKL3 D959V	Water	2-29-00	1335	X	X	X	X	1X1LP Ph=1		

CHAIN OF POSSESSION	Sign/Print Names			
Relinquished By	Date/Time	Received By	Date/Time	
R Falberg R. Falberg Hand Carried	2-29-00 1535	PW Kranta PW Kranta	2-29-00 1535	
Relinquished By	Date/Time	Received By	Date/Time	
Falberg	3-1-00 1600	[illegible]	3-2-00 0825	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy(Water) {Cobalt-60}; Gamma Spec - Add-on {Barium-133}; Isotopic Plutonium; Strontium-89,90 – Total Sr; Americium-241; Carbon-14; Nickel-63

Non Rad Sample / No activity report

Matrix *
S=Soil
SE=Sediment
SD=Solid
S=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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Quanterra

Date/Time Received: 2/29/00 1535 SDG#: W03100

Work Order Number: JOC010116 SAF#: B00-014

Shipping Container ID: ERC-97-079 Chain of Custody #: B00-014-06

1. Outermost shipping container damaged? Yes [ ] No [✓]
2. Custody Seals on shipping container intact? Yes [✓] No [ ]
3. Custody Seals dated and signed? Yes [✓] No [ ]
4. Chain-of-Custody record present? Yes [✓] No [ ]
5. Chain-of-Custody includes the following information:
   - Client name Yes [✓] No [ ]
   - Project name or number Yes [✓] No [ ]
   - Sample date/time for each sample Yes [✓] No [ ]
   - Container types, sizes and number of containers Yes [✓] No [ ]
   - Short description of sample, i.e., matrix Yes [✓] No [ ]
   - Analyses requested Yes [✓] No [ ]
   - Preservation used or "none" or N/A if not applicable Yes [✓] No [ ]
   - Date and time of relinquish and receipt Yes [✓] No [ ]
   - Signatures of those persons relinquishing and receiving Yes [✓] No [ ]
6. Sample numbers on chain of custody match those on sample containers? (4) Yes [✓] No [ ]
7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes [✓] No [ ]
8. Cooler temperature: 4°
9. Vermiculite/packing materials is: Wet [✓] Dry [ ]

10. Samples have: ✓ tape ___ hazard labels ___ custody seals ✓ appropriate sample labels

11. Samples are: ✓ in good condition ___ leaking ___ broken ___ have air bubbles

12. Were any anomalies identified in sample receipt? Yes [ ] No [ ]
13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: BWilson Date: 2/29/00

Telephone/Fax/E:mailed to: _____ On _____ By _____

Quanterra Environmental Services

000069

Lot No.: F0C0320AC
W03100

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Bechtel Hanford
Quote No: 33833
Shipper/No: Fedex 401 2638210

Date: 3-2-00 Time: 0825
Initiated by: [signature]
RFA/COC Numbers: BDD-614

Condition/Variance (Check all that apply):

1.	☐	Sample received broken/leaking.	8.	☐	Sample ID on container does not match sample ID on paperwork. Explain: _____
2.	☐	Sample received without proper preservative.			
	☐	Cooler temperature not within 4°C ± 2°C			
		Record temperature: _____			
	☐	pH _____	9.	☐	All coolers on airbill not received with shipment.
	☐	other: _____	10.	☐	Sample volume insufficient for analysis
3.	☐	Sample received in improper container.	11.	☐	Other (explain below)
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/not tamper evident type (circle all that apply).			

☒ **No variances were noted during sample receipt.**
☐ **Cooler Temperature Upon Receipt in °C:** 2°

Temperature Variance Does Not Affect the Following Analyses: _____

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: [signature] Date: 3-2-00
Project Management Review: MWard Date: 3-3-00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 02/01/00

BECHTEL HANFORD, INC.

Client Sample ID: B0XKL3

TOTAL Metals

Lot-Sample #...: F0C030106-001 **Matrix.....:** WATER
Date Sampled...: 02/29/00 **Date Received..:** 02/29/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0073217						
Lead	ND	3.0	ug/L	SW846 6010B	03/13-03/15/00	D9801101
		Dilution Factor: 1		MDL.....: 0.90		
Chromium	ND	5.0	ug/L	SW846 6010B	03/13-03/15/00	D9801109
		Dilution Factor: 1		MDL.....: 2.0		
Prep Batch #...: 0074359						
Mercury	**0.10 B**	**0.20**	ug/L	**SW846 7470A**	**03/14-03/15/00**	**D9801104**
		Dilution Factor: 1		MDL.....: 0.035		

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F0C030106 **Matrix.....:** WATER
Date Sampled...: 02/29/00 **Date Received..:** 02/29/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F0C030106-001 **Prep Batch #...:** 0074359									
Mercury									
	0.10	1.00	1.05	ug/L	95		SW846 7470A	03/14-03/15/00	D9801107
	0.10	1.00	1.03	ug/L	93	1.9	SW846 7470A	03/14-03/15/00	D9801108
			Dilution Factor: 1						
MS Lot-Sample #: F0C030106-001 **Prep Batch #...:** 0095198									
Lead									
	ND	2500	2290	ug/L	91		SW846 6010B	03/30-04/03/00	D9801102
	ND	2500	2310	ug/L	92	1.1	SW846 6010B	03/30-04/03/00	D9801103
			Dilution Factor: 5						
Chromium									
	ND	1000	948	ug/L	95		SW846 6010B	03/30-04/03/00	D980110A
	ND	1000	957	ug/L	96	0.91	SW846 6010B	03/30-04/03/00	D980110C
			Dilution Factor: 5						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F0C030106 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F0D040000-198 **Prep Batch #...:** 0095198						
Lead	**7.8 B**	**15.0**	**ug/L**	**SW846 6010B**	**03/30-04/03/00**	**DAERF101**
		Dilution Factor: 5				
Chromium	ND	50.0	ug/L	SW846 6010B	03/30-04/03/00	DAERF102
		Dilution Factor: 5				
MB Lot-Sample #: F0C130000-217 **Prep Batch #...:** 0073217						
Lead	**0.720 B**	**3.0**	**ug/L**	**SW846 6010B**	**03/13-03/15/00**	**D9JLR10M**
		Dilution Factor: 1				
Chromium	**3.2 B**	**5.0**	**ug/L**	**SW846 6010B**	**03/13-03/15/00**	**D9JLR11T**
		Dilution Factor: 1				
MB Lot-Sample #: F0C140000-359 **Prep Batch #...:** 0074359						
Mercury	ND	0.20	ug/L	SW846 7470A	03/14-03/15/00	D9LAC101
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F0C030106 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F0C130000-217 **Prep Batch #...:** 0073217							
Lead	1000	953.50	ug/L	95	SW846 6010B	03/13-03/15/00	D9JLR11J
			Dilution Factor: 1				
Chromium	1000	987	ug/L	99	SW846 6010B	03/13-03/15/00	D9JLR11U
			Dilution Factor: 1				
LCS Lot-Sample#: F0D040000-198 **Prep Batch #...:** 0095198							
Lead	5000	4550	ug/L	91	SW846 6010B	03/30-04/03/00	DAERF104
			Dilution Factor: 1				
Chromium	5000	4710	ug/L	94	SW846 6010B	03/30-04/03/00	DAERF103
			Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: F0C030106 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Mercury	1.00	1.00	ug/L	100		SW846 7470A	03/14-03/15/00	0074359
	1.00	0.969	ug/L	97	3.1	SW846 7470A	03/14-03/15/00	0074359

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.