W03006-QES

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Quanterra
2800 George Washington Way
Richland, Washington 99352-1613

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

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

February 7, 2000

Attention: Joan Kessner

SAF Number	:	B99-005
Date SDG Closed	:	January 5, 2000
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W03006
Data Deliverable	:	15-Day / Summary

I. Introduction

On January 5, 2000, one soil sample was received at the Quanterra Richland Laboratory (QRL) for radiochemical and chemical 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
9D73V210	B0X9J8	SOIL	1/5/00

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:

Alpha Spectroscopy
Plutonium-238, -239/40 by method RICH-RC-5010
Uranium-234, -235, -238 by method RICH-RC-5079
Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017
Gas Proportional Counting
Total Strontium by method RICH-RC-5006
Chemical Analyses
Chromium Hex by EPA method 7196

III. Quality Control

The analytical results for each analysis performed under SDG W03006 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.

Quality control sample results are reported in the same units as sample results with the exception of the chemical analyses which are reported in mg/L.

IV. Comments

Alpha Spectroscopy

Plutonium-238, -239/40 by method RICH-RC-5079

The sample and sample duplicate (B0X9J8) tracer recoveries were less than 20%. The batch was reanalyzed. The sample duplicate reanalysis result has a tracer yield within limits, however, the sample reanalysis result has a tracer recovery less than 20%. Since the sample MDAs meet the CRDL and the detected activities are below the achieved MDAs in all cases, the results are accepted for reporting. [The sample result (19% tracer recovery) from the original analysis was chosen for reporting with the duplicate sample analysis (21% tracer recovery) from the reanalysis batch.] The LCS and batch blank results for both analyses are within contractual requirements.

Uranium-234, -235, -238 by method RICH-RC-5062 Draft

The LCS, batch blank, sample duplicate (B0X9J8) and sample results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017

The LCS, batch blank, sample duplicate (B0X9J8) and sample results are within contractual requirements.

Gas Proportional Counting

Total Strontium by method RICH-RC-5006

The LCS, batch blank, sample duplicate (B0X9J8) and sample results are within contractual requirements.

Chemical Analyses

Chromium Hex by EPA method 7196

The LCS, batch blank, sample, sample duplicate (B0X9J8) and sample matrix spike (B0X9J8) 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

Jackie Waddell
Project Manager

Quanterra

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	9D73V210	MATRIX:	SOIL
CLIENT ID:	B0X9J8	DATE RECEIVED:	1/5/2000 11:00:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	8.00E-02	U	N/A	N/A	N/A	mg/kg	N/A	EPA7196
PU-238	1.56E-02	U	3.1E-02	3.1E-02	4.23E-02	pCi/g	19.45%	RICHRC5010
PU239/40	1.56E-02	U	3.1E-02	3.1E-02	4.23E-02	pCi/g	19.45%	RICHRC5010
U-234	6.40E-01	J	1.2E-01	1.6E-01	3.75E-02	pCi/g	77.23%	RICHRC5079
U-235	8.30E-03	U	1.6E-02	1.6E-02	3.24E-02	pCi/g	77.23%	RICHRC5079
U-238	6.44E-01	J	1.2E-01	1.6E-01	5.14E-02	pCi/g	77.23%	RICHRC5079
CO-60	2.99E-03	U	1.1E-02	1.1E-02	1.98E-02	pCi/g		RICHRC5017
CS-137	1.64E-02	U	1.2E-02	1.2E-02	2.09E-02	pCi/g		RICHRC5017
EU-152	-1.85E-02	U	2.8E-02	2.8E-02	4.55E-02	pCi/g		RICHRC5017
EU-154	-1.29E-02	U	3.7E-02	3.7E-02	6.27E-02	pCi/g		RICHRC5017
EU-155	2.43E-02	U	2.7E-02	2.7E-02	4.62E-02	pCi/g		RICHRC5017
RA-226	5.18E-01		7.5E-02	7.5E-02	3.36E-02	pCi/g		RICHRC5017
RA-228	6.98E-01		1.1E-01	1.1E-01	6.80E-02	pCi/g		RICHRC5017
STRONTIUM	0.00E+00	U	0.0E+00	5.1E-02	1.24E-01	pCi/g	77.70%	RICHRC5006

Number of Results: 14

Result = IDL When Not Detected

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

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DUPLICATE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V218R	MATRIX:	SOIL
CLIENT ID:	B0X9J8	DATE RECEIVED:	1/5/2000 11:00:00 A
ORIG LAB SAMPLE ID:	9D73V210		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	8.00E-02		N/A	N/A	8.00E-02	mg/kg	N/A	EPA7196	8.00E-02	0.00%

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V21CR	MATRIX:	SOIL
CLIENT ID:	B0X9J8 DUP	DATE RECEIVED:	1/5/2000 11:00:00 A
ORIG LAB SAMPLE ID:	9D73V210		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
U-234	7.11E-01	J	1.3E-01	1.8E-01	3.59E-02	pCi/g	74.24%	RICHRC5079	6.40E-01	10.55%
U-235	2.14E-02	U	2.2E-02	2.3E-02	2.55E-02	pCi/g	74.24%	RICHRC5079	8.30E-03	88.40%
U-238	6.62E-01	J	1.2E-01	1.7E-01	3.16E-02	pCi/g	74.24%	RICHRC5079	6.44E-01	2.82%

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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DUPLICATE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V21DR	MATRIX:	SOIL
CLIENT ID:	B0X9J8 DUP	DATE RECEIVED:	1/5/2000 11:00:00 A
ORIG LAB SAMPLE ID:	9D73V210		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
CO-60	1.53E-02	U	1.1E-02	1.1E-02	2.04E-02	pCi/g		RICHRC5017	2.99E-03	134.46%
CS-137	2.27E-02	U	1.2E-02	1.2E-02	2.12E-02	pCi/g		RICHRC5017	1.64E-02	32.38%
EU-152	-3.44E-02	U	4.3E-02	4.3E-02	4.87E-02	pCi/g		RICHRC5017	-1.85E-02	60.10%
EU-154	-4.02E-02	U	3.6E-02	3.6E-02	5.77E-02	pCi/g		RICHRC5017	-1.29E-02	102.83%
EU-155	3.16E-02	U	3.2E-02	3.2E-02	5.44E-02	pCi/g		RICHRC5017	2.43E-02	26.18%
RA-226	4.29E-01		6.4E-02	6.4E-02	3.74E-02	pCi/g		RICHRC5017	5.18E-01	18.89%
RA-228	6.65E-01		1.0E-01	1.0E-01	6.69E-02	pCi/g		RICHRC5017	6.98E-01	4.88%

Number of Results: 7

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V21ER	MATRIX:	SOIL
CLIENT ID:	B0X9J8 DUP	DATE RECEIVED:	1/5/2000 11:00:00 A
ORIG LAB SAMPLE ID:	9D73V210		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
STRONTIUM	5.99E-02	U	6.0E-02	6.2E-02	1.22E-01	pCi/g	79.00%	RICHRC5006	0.00E+00	200.00%

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V21FR	MATRIX:	SOIL
CLIENT ID:	B0X9J8 DUP	DATE RECEIVED:	1/5/2000 11:00:00 A
ORIG LAB SAMPLE ID:	9D73V210		

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
PU-238	-1.30E-03	U	2.6E-03	2.6E-03	6.52E-02	pCi/g	21.07%	RICHRC5010	1.56E-02	236.23%
PU239/40	-1.30E-03	U	2.6E-03	2.6E-03	6.51E-02	pCi/g	21.07%	RICHRC5010	1.56E-02	236.22%

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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BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D761D11B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	1.00E-03	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196

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: QUANTERRA, Richland SDG /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D76CP11B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00	U	0.0E+00	1.1E-02	1.20E-02	pCi/g	68.21%	RICHRC5010
PU239/40	-7.08E-04	U	1.0E-03	1.0E-03	2.02E-02	pCi/g	68.21%	RICHRC5010

Number of Results: 2

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: QUANTERRA, Richland SDG /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D76D111X MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
U-234	-2.04E-03	U	1.8E-03	1.9E-03	2.87E-02	pCi/g	85.08%	RICHRC5079
U-235	-2.04E-03	U	1.8E-03	1.9E-03	2.87E-02	pCi/g	85.08%	RICHRC5079
U-238	2.24E-03	U	1.0E-02	1.0E-02	3.15E-02	pCi/g	85.08%	RICHRC5079

Number of Results: 3

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: QUANTERRA, Richland SDG /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D76D211B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
CO-60	9.49E-05	U	6.4E-03	6.4E-03	1.13E-02	pCi/g		RICHRC5017
CS-137	-4.83E-04	U	6.3E-03	6.3E-03	1.10E-02	pCi/g		RICHRC5017
EU-152	-1.57E-03	U	1.7E-02	1.7E-02	2.93E-02	pCi/g		RICHRC5017
EU-154	1.03E-02	U	1.9E-02	1.9E-02	3.54E-02	pCi/g		RICHRC5017
EU-155	-1.33E-02	U	1.4E-02	1.4E-02	2.23E-02	pCi/g		RICHRC5017
RA-226	1.07E-01	U	2.9E-02	2.9E-02	3.55E-02	pCi/g		RICHRC5017
RA-228	5.96E-02	U	2.6E-02	2.6E-02	5.08E-02	pCi/g		RICHRC5017

Number of Results: 7

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: QUANTERRA, Richland SDG /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D76D311B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	4.61E-02	U	5.1E-02	5.2E-02	1.05E-01	pCi/g	94.20%	RICHRC5006

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: QUANTERRA, Richland SDG /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D7NDN11X MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	9.83E-03	U	2.4E-02	2.4E-02	5.35E-02	pCi/g	36.03%	RICHRC5010
PU239/40	-9.38E-04	U	1.9E-03	1.9E-03	4.71E-02	pCi/g	36.03%	RICHRC5010

Number of Results: 2

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D761D12S	MATRIX:	SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	9.34E-01		N/A	N/A	2.00E-03	mg/L	N/A	1.00E+00	93.40%

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D76CP12S	MATRIX:	SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
PU239/40	3.09E+00		2.6E-01	6.0E-01	2.23E-02	pCi/g	60.69%	3.44E+00	89.62%

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: QUANTERRA, Richland SDG: /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D76D112S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
U-234	7.94E-01	J	1.2E-01	1.8E-01	2.68E-02	pCi/g	104.88%	8.65E-01	91.78%
U-235	1.18E-02	U	1.4E-02	1.5E-02	1.91E-02	pCi/g	104.88%	3.95E-02	30.01%
U-238	8.41E-01	J	1.2E-01	1.9E-01	2.36E-02	pCi/g	104.88%	9.06E-01	92.81%

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: QUANTERRA, Richland SDG: /RPT GRP: W03006 / 9700

LAB SAMPLE ID: D76D212S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
CS-137	3.39E-01		5.7E-02	5.7E-02	3.79E-02	pCi/g		3.07E-01	110.54%
K-40	1.96E+01		2.1E+00	2.1E+00	2.65E-01	pCi/g		1.95E+01	100.09%
RA-226	1.09E+00		1.5E-01	1.5E-01	6.13E-02	pCi/g		1.15E+00	94.16%
RA-228	1.97E+00		2.7E-01	2.7E-01	2.52E-01	pCi/g		1.89E+00	103.79%
U-238DHP	1.25E+00		5.9E-01	5.9E-01	6.48E-01	pCi/g		1.05E+00	118.82%

Number of Results: 5

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D76D312S	MATRIX:	SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	1.18E+00		1.4E-01	3.4E-01	1.03E-01	pCi/g	92.30%	1.13E+00	104.08%

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:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D7NDN12M	MATRIX:	SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
PU239/40	3.57E+00		3.8E-01	8.0E-01	4.65E-02	pCi/g	40.73%	3.39E+00	105.39%

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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rptChemRadLcs; v3.41

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MATRIX SPIKE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V217W	MATRIX:	SOIL

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	3.45E+01		N/A	N/A	8.00E-02	mg/kg	8.00E-02	3.99E+01	86.49%

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.

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MATRIX SPIKE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG: /RPT GRP:	W03006 / 9700
LAB SAMPLE ID:	D73V219W	MATRIX:	SOIL

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	6.88E+05		N/A	N/A	8.00E-02	mg/kg	8.00E-02	6.81E+02	01124.51%

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.

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rptChemRadMatrixSpike; v3.41

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Data Review Checklist
RADIOCHEMISTRY

Lot Number:	J0A5077
Client ID:	BHI
Due Date:	1/26/00
QC Batch Number:	0021290 SDG Number: 5006
Method Test Parameter:	Sr-Pu ISO
Matrix:	Soil

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: Low yields on second extraction also used matrix QC
report dup & QC NCM J0112 3

First Level Review: Pam Kenitzer Date: 2-7-00

Second Level Review: Jackie Waddell Date: 2/7/00

LS-038, Rev.5, 4/99

Quanterra

Clouseau

Nonconformance Memo

NCM #:	J01123	Classification:	Anomaly
NCM Initiated By:	Pam Kenitzer	Status:	CLOSED
Date Opened:	02/03/00	Production Area:	Environmental - Sep
Date Closed:	02/10/00	Tests:	Pulso by ALP
		Lot #'s (Sample #'s):	J0A050177 (1)
		QC Batch:	0007152, 0021290
Nonconformance:	Tracer yield out of limits		
Subcategory:	Matrix effect		

Problem Description / Root Cause

Name	Date	Description
Pam Kenitzer	02/03/00	Sample D73V105 and it's dup had low yields on the first extraction, 19.4% and 16.1%. Reextraction had yields of 7.2% and 21.1%. The sample from the first extraction and the dup from the second extraction will be reported.

Corrective Action

Name	Date	Corrective Action
Dale OConnell	02/03/00	See details.

Quality Assurance Verification

Verified By	Due Date	Status	Notes:
Jodie Carnes	N/A	Verified/completed	

Client Notification Summary

Client	Project Manager	Date Notified	Response Date	How Notified
BECHTEL HANFORD, INC.	Jackie Waddell	02/09/00	02/09/00	by narrative

Response	Response Details
No response saved	

Approval History

Name	Date Approved:	Position
Pam Kenitzer	02/03/00	Group Leader
Dale OConnell	02/03/00	Group Leader
Jackie Waddell	02/09/00	Project Manager
Jodie Carnes	02/10/00	Quality Assurance

Quanterra

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number:	J0A 050177
Client ID:	Bitz
Due Date:	1-20-00
QC Batch Number:	0007152 SDG Number: WP3001e
Method Test Parameter:	Plutonium
Matrix:	Soil

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: low yields on sample value - need next report SA + β, S - 13.4% se J011123 copy of blank batch 0031290

First Level Review: Pam Kenitzer Date: 1-20-00

Second Level Review: Jackie Waddell Date: 2/7/00

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Quanterra

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: JGA050177	
Client ID: BHI	
Due Date: 1-20-00	
QC Batch Number: 0007154	SDG Number: WQ13066
Method Test Parameter: U238	
Matrix: SOIL	

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 Kentzer Date: 1-25-00

Second Level Review: [illegible] Date: 1/31/00

0027

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Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: JCA050177	
Client ID: BHT	
Due Date: 1-20-00	
QC Batch Number: 0007155	SDG Number: WO 3006
Method Test Parameter: gamma	
Matrix: soil	

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 Kanitzer Date: 1-18-00

Second Level Review: Jackie Waddell Date: 1/23/00

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Quanterra

Data Review Checklist
RADIOCHEMISTRY

Priority

Lot Number: J0A050177	
Client ID: BH1	
Due Date: 1-20-00	
QC Batch Number: 0007156	SDG Number: W93026
Method Test Parameter: Total SR	
Matrix: Soil	

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 Kirby Date: 1-20-00

Second Level Review: Jackie Waddell Date: 1/23/00

0029

LS-038, Rev.5, 4/99

Quanterra

Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): D73V210 Batch 0006416 Lot JCAC50177

Lab Sample Numbers or SDG: W0.3006

Method/Test/Parameter: CR+6 in SOIL RICHWC5005 R.3

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency wih required number of levels?	✓			
2. Correlation coefficient within QC limits?	✓			
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			
4. Initial calibration blank(ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?	✓			
2. Were all sample holding times met?	✓			
D. QC Samples				
1. All results for the preparation blank below limits?	✓			
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			
4. Analytical spikes within QC limits where applicable?			✓	
5. ICP only: One serial dilution performed per SDG?			✓	
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
E. Other				
1. Are all nonconformances included and noted?			✓	
2. Is the correct date and time of analysis shown?	✓			
3. Did the analyst sign and date the front page of the analytical run?	✓			
4. Correct methodology used?	✓			
5. Transcriptions checked?	✓			
6. Calculations checked at minimum frequency?	✓			
7. Units checked?	✓			

Comments on any "No" response:

C1 - PbCrO4 spike required x20 dilution.

Analyst: Rosie Ross Date: 1-11-00

Second-Level Review: Jackie Waddell Date: 2/7/00

Form No. CG-191, Rev. 2, 1/97

CHAIN OF CUSTODY

4-21038

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-005-77	Page 1 of 1

Collector: R. KERKOW	Company Contact: R. KERKOW	Telephone No.: 509-531-0635	Project Coordinator: TRENT, SJ
Project Designation: 100 D Areas - Full Protocol	Sampling Location: 100-D 116-D-2 A9		SAF No.: B99-005
Ice Chest No.: ERC99-010	Field Logbook No.: EL 1339-5	COA: R116D22F00	Method of Shipment: GOV vehicle
Shipped To: Quanterra Incorporated	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Price Code: 8K

Air Quality: [ ]

Data Turnaround: 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SPK Due 1-20

N03C0G JOAC50177

SAMPLE ANALYSIS

Preservation	None	None	Cool 4C							
Type of Container	P	P	aG							
No. of Container(s)	1	1	1							
Volume	1L	20mL	60mL							
	See item (1) in Special Instructions.	Activity Scan	Chromium Hex - 7196					TIGTO		

Sample No.	Matrix *	Sample Date	Sample Time										
B0X9J8 D73V2	Soil	1-4-00	1230	X	X	X					B0X4L0		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: RB Kerkow / RB. KERKOW	Date/Time: 1630 01-04-00	Received By: REF #113	Date/Time: 1630 01-04-00
Relinquished By: Ref 1B	Date/Time: 1500/0900	Received By: RA Thoren / R. Thoren	Date/Time: 1500/0900
Relinquished By: RA. Thoren / R. Thoren	Date/Time: 1500/1100	Received By: R. Schlenburg	Date/Time: 1100 1500
Relinquished By	Date/Time	Received By	Date/Time: 2100 cm
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr

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

BHI-EE-011 (10/99)

116-D-2

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0688

N912128-02 B0X4L0

DATA SHEET

A9-3

SDG	7761	Client/Case no	Hanford	SDG H0688	
Contact	Meliggs C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N912128-02	Client sample id	B0X4L0		
Dept sample id	7761-002	Location/Matrix	Hanford Site	SOLID	
Received	12/10/99	Collected	12/07/99 09:00		
		Custody/SAF No	B99-004-188	B99-004	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	0.104	0.042	0.042	0.10		GAM
Europium 152	14683-23-9	U		0.089	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.096	0.10	U	GAM
Americium 241	14596-10-2	U		0.11		U	GAM

100 D Areas - 116-D-2

B0y9J8

QUICK TURN DATA

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/27/99

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 01-05-00 1100 SG#: W03006

Work Order Number: J0A050177 SAF #: B00-013 / B99-005

Shipping Container ID: BR9910 Chain of Custody # B99-005-77

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 [✓]
6. Number of samples in shipping container: 11
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: K. Ashburn Date: 01-05-00

Telephoned To: _____ On _____ By _____

Client Sample Screening Results

05-Jan-00

(B) 1/6/00

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BHI B0X9J8D73V2		1/5/2000 4:40:00 PM	QUAD21B	1/5/2000 9:10:58 PM	B0X9J8D73V2	30	14	0.38	109	2.69333333
D73V2	SOLID		Bkg:	1/5/2000 7:05:37 AM	BKG	450	39	0.086666667	423	0.94

Anl Date: 1/5/00 Tot Sa, Alq: 1.75E+03 , 1.20E+02 Alp; (Dpm/ 2.79E+00 (uCi/ 1.83E-02 (pCi/ 1.05E+01 + 5.1E+00 CAT 4.8E+00 Lab
Ppt mg: 120 Units: g , mg Bet; Alq): 5.95E+00 Sa): 3.90E-02 L|g): 2.23E+01 + 3.0E+00 II 4.5E+00 Alq L|g

BHI B0XB60D73R0		1/5/2000 4:40:00 PM	QUAD21C	1/5/2000 9:10:58 PM	B0XB60D73R0	30	15	0.415555556	83	1.79333333
D73R0	SOLID		Bkg:	1/5/2000 7:05:37 AM	BKG	450	38	0.084444444	438	0.97333333

Anl Date: 1/5/00 Tot Sa, Alq: 1.58E+02 , 8.55E+01 Alp; (Dpm/ 2.60E+00 (uCi/ 2.17E-03 (pCi/ 1.37E+01 + 6.3E+00 CAT 3.7E+00 Lab
Ppt mg: 85.5 Units: g , mg Bet; Alq): 3.72E+00 Sa): 3.10E-03 L|g): 1.96E+01 + 3.5E+00 I 5.1E+00 Alq L|g

BHI B0XB61D73RE		1/5/2000 4:40:00 PM	QUAD21D	1/5/2000 9:10:58 PM	B0XB61D73RE	30	16	0.435555556	98	2.31333333
D73RE	SOLID		Bkg:	1/5/2000 7:05:37 AM	BKG	450	44	0.097777778	429	0.95333333

Anl Date: 1/5/00 Tot Sa, Alq: 1.25E+02 , 8.12E+01 Alp; (Dpm/ 2.58E+00 (uCi/ 1.80E-03 (pCi/ 1.43E+01 + 6.5E+00 CAT 3.5E+00 Lab
Ppt mg: 81.2 Units: g , mg Bet; Alq): 4.88E+00 Sa): 3.39E-03 L|g): 2.71E+01 + 4.1E+00 I 3.7E+00 Alq L|g

BHI B0XB62D73RR		1/5/2000 4:40:00 PM	QUAD23B	1/5/2000 9:11:02 PM	B0XB62D73RR	30	7	0.135555556	68	1.31333333
D73RR	SOLID		Bkg:	1/5/2000 7:05:47 AM	BKG	450	44	0.097777778	429	0.95333333

Anl Date: 1/5/00 Tot Sa, Alq: 1.38E+02 , 8.53E+01 Alp; (Dpm/ 7.90E-01 (uCi/ 5.77E-04 (pCi/ 4.17E+00 + 5.3E+00 CAT 1.2E+01 Lab
Ppt mg: 85.3 Units: g , mg Bet; Alq): 2.78E+00 Sa): 2.03E-03 L|g): 1.47E+01 + 3.2E+00 I 6.8E+00 Alq L|g

BHI B0XB63D73T4		1/5/2000 4:40:00 PM	QUAD23C	1/5/2000 9:11:02 PM	B0XB63D73T4	30	11	0.24	95	2.13111111
D73T4	SOLID		Bkg:	1/5/2000 7:05:47 AM	BKG	450	57	0.126666667	466	1.03555556

Anl Date: 1/5/00 Tot Sa, Alq: 1.63E+02 , 7.36E+01 Alp; (Dpm/ 1.31E+00 (uCi/ 1.31E-03 (pCi/ 8.02E+00 + 6.4E+00 CAT 6.2E+00 Lab
Ppt mg: 73.6 Units: G , mg Bet; Alq): 4.40E+00 Sa): 4.38E-03 L|g): 2.69E+01 + 4.3E+00 I 3.7E+00 Alq L|g

BHI B0XB64D73T5		1/5/2000 4:40:00 PM	QUAD23D	1/5/2000 9:11:02 PM	B0XB64D73T5	30	15	0.406666667	98	2.33333333
D73T5	SOLID		Bkg:	1/5/2000 7:05:47 AM	BKG	450	42	0.093333333	420	0.93333333

Anl Date: 1/5/00 Tot Sa, Alq: 1.54E+02 , 1.14E+02 Alp; (Dpm/ 2.77E+00 (uCi/ 1.69E-03 (pCi/ 1.10E+01 + 4.9E+00 CAT 4.6E+00 Lab
Ppt mg: 113.8 Units: g , mg Bet; Alq): 4.82E+00 Sa): 2.94E-03 L|g): 1.91E+01 + 2.9E+00 I 5.2E+00 Alq L|g

0036

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

Quanterra Incorporated
Information Sheet Rad Prep

****
* *
* QC BATCH: 0021290 *
* *
****

Run Date: 1/21/0
Time: 11:38:0

Page: 1

SO: Plutonium-238,239/40 by Alpha Spec
6A: Pu PrpRC5013/RC5019, SepRC5010(5039)
5I: CLIENT: HANFORD

Analytical Due Date: 1/20/00

Project Manager:

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
J0A210000-290 B D7NDN-1-01 Comments:	SOLID		1/20/00				1/04/00		1	pCi/g	**NA	**NA	
J0A210000-290 C D7NDN-1-02 Comments:	SOLID		1/20/00				1/04/00		1	pCi/g	**NA	**NA	
J0A050177-001 X D73V2-1-0F Comments:	SOIL	SOIL	1/20/00	.0000		.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
J0A050177-001 D73V2-2-05 Comments:	SOIL	SOIL	1/20/00	.0000		.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2

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
Plutonium 238	1	Plutonium 242	(020-105)		
Plutonium 239/4	1				

** 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.

0037

Quanterra

COC Signature Page

Lot or Batch #: JCA06 0200	Initials/Date	Procedure #
Released By	PK 1-20-00	RICHRC0002
Received	SK 1/20/00	RC5019
Released By	SK 1/28/00	n/a
Received	[illegible] 01-28-00	RC 5010
Released By	[illegible] 01-29-00	n/a
Received	SD 1/29/00	RC 5039-2
Released By	SD 1/31/00	n/a
Received	CS 1/31/00	RICHRC0001
Released By	CS 2/1/00	n/a
Received	PK 2-1-00	RICHRC0002
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

Run Date: 1/07/00
Time: 9:22:29

Page: 1

****
* QC BATCH: 0007152 *
****

W003006

15day

SO: Plutonium-238,239/40 by Alpha Spec
6A: Pu PrpRC5013/RC5019, SepRC5010(5039)
5I: CLIENT: HANFORD

Analytical Due Date: 1/20/00
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
J0A050177-001 X D73V2-1-0A Comments:	SOIL SOIL	1/20/00		Bechtel Hanford, .0000	.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
J0A050177-001 D73V2-1-05 Comments:	SOIL SOIL	1/20/00		Bechtel Hanford, .0000	.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
J0A070000-152 B D76CP-1-01 Comments:	SOLID	1/20/00		Bechtel Hanford,		1/04/00		1	pCi/g	**NA	**NA	JW2
J0A070000-152 C D76CP-1-02 Comments:	SOLID	1/20/00		Bechtel Hanford,		1/04/00		1	pCi/g	**NA	**NA	JW2
J0A070000-152 B D76CP-1-03 Comments:	SOLID	1/20/00		Bechtel Hanford,		1/04/00		1	pCi/g	**NA	**NA	JW2
J0A070000-152 C D76CP-1-04 Comments:	SOLID	1/20/00		Bechtel Hanford,		1/04/00		1	pCi/g	**NA	**NA	JW2

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
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.

15day

0039

Gamma

CCC Signature Page

WO3886

Lot or Batch #: 0007152

	Initials/Date	Procedure #
Released By	[illegible] 1-8-00	Radiac 0009
Received	[illegible] 1-8-00	RC 5013
Released By	[illegible] 1-10-00	n/a
Received	SK 1/10/00	RC 5019-1
Released By	SK 1/13/00	n/a
Received	[illegible] 01-13-00	RC 5010
Released By	[illegible] 01-14-00	n/a
Received	SD 1/14/00	RC 5039-2
Released By	1/19/00	n/a
Received	[illegible] 1/19/00	RC HARDWARE
Released By	[illegible] 1/20/00	n/a
Received	[illegible] 1-20-00	Radcalc V2.4
Released By	[illegible] 1-20-00	n/a
Received	PK 1-20-00	RC HARDWARE

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RQC053

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

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* *
* QC BATCH: 0007154 *
* *
****

15day

Run Date: 1/07/00
Time: 9:23:27

Page: 1

W03006

SR: Uranium-234,235,238 by Alpha Spec
7S: UIso PrpRC5013/RC5019, SepRC5079(5039)
5I: CLIENT: HANFORD

Analytical Due Date: 1/20/00

Project Manager: JW2

	Lot# Work Order	Client	Analyt Matrix	Due	Client Name Aliquot	Geometry	Count Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
	J0A050177-001 X D73V2-1-0C	SOIL	1/20/00		Bechtel Hanford, .0000		.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
	Comments:	SOIL												
++	J0A050177-001 D73V2-1-02	SOIL	1/20/00		Bechtel Hanford, .0000		.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
	Comments:	SOIL												
	J0A070000-154 B D76D1-1-01	SOLID	1/20/00		Bechtel Hanford,			1/04/00			pCi/g	**NA	**NA	JW2
	Comments:													
	J0A070000-154 C D76D1-1-02	SOLID	1/20/00		Bechtel Hanford,			1/04/00			pCi/g	**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
Uranium 234	1	Uranium-232	(020-105)	RPD	
Uranium 235	1			RPD	
Uranium 238	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.

Quantera

CCC Signature Page

W03006

Lot or Batch #: 0007154

	Initials/Date	Procedure #
Released By	1-8-00	Richrc00 09
Received	1-8-00	RC 5013
Released By	1-10-00	n/a
Received	SK 1/10/00	RC 5019-1
Released By	SK 1/13/00	n/a
Received	01-13-00	RC 5079
Released By	01-14-00	n/a
Received	SD 1/14/00	RC 5039-2
Released By	SD 1/24/00	n/a
Received	CO 1/24/00	RCLMD0208K1
Released By	CO 1/25/00	n/a
Received	JM 1-25-00	Radcalc 1/8.4
Released By	JM 1-25-00	n/a
Received	PK 1-25-00	RLCHRC0002
	PK 1-26-00	

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RQC053

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

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* QC BATCH: 0007155 *
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W03006

T8: Gamma by HPGE 7 day ingrowth
AW: Gamma PrpRC5017
51: CLIENT: HANFORD

Run Date: 1/07/00
Time: 9:24:04

Page: 1

15day

Analytical Due Date: 1/20/00

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
J0A050177-001 X D73V2-1-0D Comments:	SOIL SOIL	1/20/00	Bechtel Hanford, .0000		.000	1/04/00		0.05	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
J0A050177-001 D73V2-1-06 Comments:	SOIL SOIL	1/20/00	Bechtel Hanford, .0000		.000	1/04/00		0.05	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
J0A070000-155 B D76D2-1-01 Comments:	SOLID	1/20/00	Bechtel Hanford,			1/04/00		0.1	pCi/g	**NA	**NA	JW2
J0A070000-155 C D76D2-1-02 Comments:	SOLID	1/20/00	Bechtel Hanford,			1/04/00		0.1	pCi/g	**NA	**NA	JW2

Quantera

CCC Signature Page

WO 3006

Lot or Batch #: 0007155

	Initials/Date	Procedure #
Released By	1-8-00	Richr-009
Received	1-8-00	RC 5013/017
Released By	1-10-00	n/a
Received	1/10/2000	RICHRD0007R002
Released By	1/10/00	n/a
Received	PK 1-18-00	RICHRC0002
Released By	PK 1-19-00	n/a
Received		
Released By		n/a
Received		
Released By		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

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* *
* QC BATCH: 0007156 *
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Run Date: 1/07/00
Time: 9:25:0

Page: 1

15day

TH: Total Strontium by GPC
CH: Sr-Total PrpRC5013, SepRC5006
SI: CLIENT: HANFORD

Analytical Due Date: 1/20/00
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
J0A050177-001 X D73V2-1-0E Comments:	SOIL SOIL	1/20/00	Bechtel Hanford, .0000		.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
++ J0A050177-001 D73V2-1-03 Comments:	SOIL SOIL	1/20/00	Bechtel Hanford, .0000		.000	1/04/00		1	pCi/g	1.05E-14 2-01/00	2.23E-14	JW2
J0A070000-156 B D76D3-1-01 Comments:	SOLID	1/20/00	Bechtel Hanford,			1/04/00		1	pCi/g	**NA	**NA	JW2
J0A070000-156 C D76D3-1-02 Comments:	SOLID	1/20/00	Bechtel Hanford,			1/04/00		1	pCi/g	**NA	**NA	JW2

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	1	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.

0045

Quantera

CCC Signature Page

W03006

Lot or Batch #: 0007156	Initials/Date	Procedure #
Released By	[illegible] 1-8-00	Richk 10009
Received	[illegible] 1-8-00	RC 5013
Released By	[illegible] 1-10-00	n/a
Received	SK 1/10/00	RC5013-2
Released By	SK 1/12/00	n/a
Received	RTM 1/17/00	RichRC5006
Released By	RTM 1/19/00	n/a
Received	[illegible] 1/19/00	[illegible]
Released By	[illegible] 1/20/00	n/a
Received	[illegible]	Radcalc V3.4
Released By	[illegible]	n/a
Received	RK 1-20-00	[illegible]
Released By	RK 1-21-00	n/a
Received		

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RQC050

Quanterra Incorporated
WET CHEM BATCHSHEET
Richland

Run Date: 1/06/00
Time: 17:29:07

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: EA Chromium, Hexavalent (7196A)
QC BATCH #: **0006416**
PREP DATE: 1/06/00
USER: ROSSR

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
D73V2-1-01	J-0A050177-001	XX A DW EA 5I		_____	B0X9J8
D73V2-1-07	J-0A050177-001-S	XX A DW EA 5I		_____	B0X9J8
D73V2-1-09	J-0A050177-001-S	XX A DW EA 5I		_____	B0X9J8
D73V2-1-08	J-0A050177-001-X	XX A DW EA 5I		_____	B0X9J8 DUP
D761D-1-01	J-0A060000-416-B	XX A DW EA 5I		_____	INTRA-LAB BLANK
D761D-1-02	J-0A060000-416-C	XX A DW EA 5I		_____	INTRA-LAB CHECK

Control Limits

(75-125)

(75-125)

(80-120)

Quanterra

COC Signature Page

Lot or Batch #: 0006415 0006416	Initials/Date	Procedure #
Released By	KL 1/6/00	RICHRC0009
Received	R 1/6/00	RICHWC5005 R3
Released By	R 1/11/00	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

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