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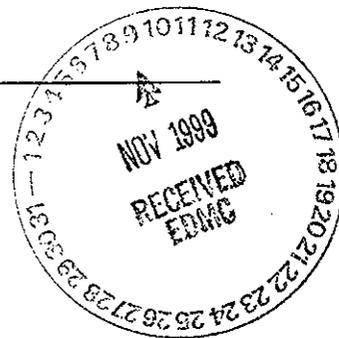
CERTIFICATE OF ANALYSIS

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

August 19, 1999

Attention: Joan Kessner

SAF Number	:	B99-072
Date First Sample Received	:	July 1, 1999
Number of Samples	:	One
Sample Type	:	Soil
SDG Number	:	W02822
Data Deliverable	:	21 Day priority

**I. Introduction**

On July 1, 1999 the Quanterra Environmental Services Richland Laboratory (QESRL) received three soil samples for a 21 Day priority radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific Ids as found on the first page of the attached report.

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
 - Americium-241 by method RICH-RC-5080
 - Uranium isotopic by method RICH-RC-5079
- Gamma Spectroscopy**
 - Gamma Scan by method RICH-RC-5017
- Gas Proportional Counting**

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Total Strontium by method RICH-RC-5006
Liquid Scintillation Counting
Nickel-63 by method RICH-RC-5069
Chemical Analyses
Chromium Hex by EPA method 7196

III. Quality Control

The analytical results for each analysis performed under SDG W02822 includes a minimum of two Laboratory Control Samples (LCS) and one method (reagent) blank. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results.

IV. Comments

Alpha Spectroscopy

Plutonium-238, -239/40 by method RICH-RC-5062

The matrix blank and spike had low yields the data is reported based on and acceptable blank and LCS. Except as noted, the LCS, batch blank, sample duplicate (BOVNK0) and sample results are within contractual requirements.

Americium-241 by method RICH-RC-5080

The LCS, batch blank, sample duplicate (BOVNK0) and sample results are within contractual requirements.

Uranium isotopic by method RICH-RC-5079

The LCS, batch blank, sample duplicate (BOVNK0) and sample results are within contractual requirements

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017

The LCS, batch blank, sample duplicate (BOVNK0) and sample results are within contractual requirements.

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Gas Proportional Counting

Total Strontium by method RICH-RC-5006

The LCS, batch blank, sample duplicate (B0VNK0) and sample results are within contractual requirements

Liquid Scintillation Counting

Nickel-63 by method RICH-RC-5069

The LCS, batch blank, sample duplicate (B0VNK0) and sample results are within contractual requirements.

Chemical Analyses

Chromium Hex by EPA method 7196

The LCS, batch blank, sample duplicate (B0VNK0) and sample results are within contractual requirements

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

Reviewed and approved:



Doug Swenson
Project Manager

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland **SDG: /RPT GRP:** W02822 / 8454
LAB SAMPLE ID: 9CXKEQ10 **MATRIX:** SOIL
CLIENT ID: B0VNK0 **DATE RECEIVED:** 7/1/99 10:53:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	7.21E-01		N/A	N/A	8.00E-02	mg/kg	N/A	EPA7196
AM-241	-4.76E-04	U	9.5E-04	9.6E-04	2.39E-02	pCi/g	65.70%	RICHRC5080
PU-238	0.00E+00	U	0.0E+00	2.0E-02	2.24E-02	pCi/g	38.37%	RICHRC5010
PU239/40	2.48E-02	J	2.9E-02	2.9E-02	2.24E-02	pCi/g	38.37%	RICHRC5010
U-234	4.75E-01	J	1.0E-01	1.3E-01	2.80E-02	pCi/g	81.53%	RICHRC5079
U-235	4.02E-02	J	3.0E-02	3.1E-02	2.80E-02	pCi/g	81.53%	RICHRC5079
U-238	4.94E-01	J	1.0E-01	1.3E-01	3.49E-02	pCi/g	81.53%	RICHRC5079
CO-60	2.82E-03	U	1.0E-02	1.0E-02	1.80E-02	pCi/g		RICHRC5017
CS-137	2.86E-01		3.6E-02	3.6E-02	1.76E-02	pCi/g		RICHRC5017
EU-152	2.12E-01	U	6.2E-02	6.2E-02	5.91E-02	pCi/g		RICHRC5017
EU-154	3.44E-02	U	3.0E-02	3.0E-02	5.62E-02	pCi/g		RICHRC5017
EU-155	2.37E-02	U	2.5E-02	2.5E-02	4.31E-02	pCi/g		RICHRC5017
RA-226	3.51E-01		6.0E-02	6.0E-02	3.04E-02	pCi/g		RICHRC5017
RA-228	4.47E-01		9.4E-02	9.4E-02	6.04E-02	pCi/g		RICHRC5017
STRONTIUM	1.36E+00		1.6E-01	4.2E-01	1.50E-01	pCi/g	71.40%	RICHRC5006
NI-63	6.09E+00	J	3.3E-01	3.5E+00	5.29E+00	pCi/g	99.20%	RICHRC5069

Number of Results: 16

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: W02822 / 8454
LAB SAMPLE ID: CXKEQ1AR MATRIX: SOIL
CLIENT ID: B0VNK0 DATE RECEIVED: 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
NI-63	6.89E+00	J	3.7E-01	3.9E+00	5.83E+00	pCi/g	89.34%	RICHRC5069	6.09E+00	12.35%

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland **SDG: /RPT GRP:** W02822 / 8454
LAB SAMPLE ID: CXKEQ1CR **MATRIX:** SOIL
CLIENT ID: B0VNK0 **DATE RECEIVED:** 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

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	2.6E-02	2.86E-02	pCi/g	29.57%	RICHRC5010	0.00E+00	0.00%
PU239/40	1.05E-02	U	2.1E-02	2.1E-02	2.85E-02	pCi/g	29.57%	RICHRC5010	2.48E-02	80.69%

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland **SDG: /RPT GRP:** W02822 / 8454
LAB SAMPLE ID: CXKEQ1DR **MATRIX:** SOIL
CLIENT ID: B0VNK0 **DATE RECEIVED:** 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
U-234	5.50E-01	J	1.0E-01	1.4E-01	2.43E-02	pCi/g	82.52%	RICHRC5079	4.75E-01	14.66%
U-235	1.64E-02	U	2.0E-02	2.0E-02	3.14E-02	pCi/g	82.52%	RICHRC5079	4.02E-02	84.19%
U-238	5.43E-01	J	1.0E-01	1.4E-01	3.14E-02	pCi/g	82.52%	RICHRC5079	4.94E-01	9.54%

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXKEQ1ER MATRIX: SOIL
CLIENT ID: B0VNK0 DATE RECEIVED: 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
AM-241	2.46E-02	J	2.5E-02	2.5E-02	1.67E-02	pCi/g	63.36%	RICHRC5080	-4.76E-04	207.90%

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland **SDG: /RPT GRP:** W02822 / 8454
LAB SAMPLE ID: CXKEQ1FR **MATRIX:** SOIL
CLIENT ID: B0VNK0 **DATE RECEIVED:** 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

ANALYTE	DUP RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
CO-60	4.65E-03	U	1.2E-02	1.2E-02	2.07E-02	pCi/g		RICHRC5017	2.82E-03	49.12%
CS-137	2.87E-01		3.8E-02	3.8E-02	2.02E-02	pCi/g		RICHRC5017	2.86E-01	0.41%
EU-152	1.81E-01	U	5.0E-02	5.0E-02	6.65E-02	pCi/g		RICHRC5017	2.12E-01	15.52%
EU-154	2.69E-02	U	3.8E-02	3.8E-02	6.69E-02	pCi/g		RICHRC5017	3.44E-02	24.40%
EU-155	2.02E-02	U	3.5E-02	3.5E-02	5.78E-02	pCi/g		RICHRC5017	2.37E-02	16.14%
RA-226	3.91E-01		5.7E-02	5.7E-02	3.78E-02	pCi/g		RICHRC5017	3.51E-01	10.98%
RA-228	5.17E-01		9.1E-02	9.1E-02	7.54E-02	pCi/g		RICHRC5017	4.47E-01	14.57%

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXKEQ1GR MATRIX: SOIL
CLIENT ID: B0VNK0 DATE RECEIVED: 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
STRONTIUM	1.32E+00	1.6E-01	4.1E-01	1.46E-01	pCi/g	73.00%	RICHRC5006	1.36E+00	3.15%

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXKEQ1JR MATRIX: SOIL
CLIENT ID: B0VNK0 DATE RECEIVED: 7/1/99 10:53:00 AM
ORIG LAB SAMPLE ID: 9CXKEQ10

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	8.02E-01	N/A	N/A	8.00E-02	mg/kg	N/A	EPA7196	7.21E-01	10.64%

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLRR11B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
NI-63	3.92E+00	U	2.2E-01	3.2E+00	4.89E+00	pCi/g	105.77%	RICHRC5069

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLRX11B 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	2.1E-02	2.30E-02	pCi/g	37.54%	RICHRC5010
PU239/40	-6.79E-04	U	1.4E-03	1.4E-03	3.41E-02	pCi/g	37.54%	RICHRC5010

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT111B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
U-234	-2.12E-03	U	1.9E-03	1.9E-03	3.00E-02	pCi/g	86.83%	RICHRC5079
U-235	3.61E-03	U	1.1E-02	1.1E-02	2.84E-02	pCi/g	86.83%	RICHRC5079
U-238	5.31E-03	U	1.1E-02	1.1E-02	1.44E-02	pCi/g	86.83%	RICHRC5079

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT411B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	1.20E-02	U	1.8E-02	1.8E-02	2.53E-02	pCi/g	61.91%	RICHRC5080

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT413X MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	0.00E+00	U	0.0E+00	1.5E-02	1.62E-02	pCi/g	69.92%	RICHRC5080

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXL711B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
CO-60	3.21E-03	U	7.4E-03	7.4E-03	1.36E-02	pCi/g		RICHRC5017
CS-137	6.93E-03	U	6.7E-03	6.7E-03	1.23E-02	pCi/g		RICHRC5017
EU-152	-8.27E-03	U	1.8E-02	1.8E-02	2.92E-02	pCi/g		RICHRC5017
EU-154	-1.70E-03	U	2.0E-02	2.0E-02	3.48E-02	pCi/g		RICHRC5017
EU-155	-5.80E-03	U	1.5E-02	1.5E-02	2.53E-02	pCi/g		RICHRC5017
RA-226	3.26E-02	J	3.0E-02	3.0E-02	2.35E-02	pCi/g		RICHRC5017
RA-228	6.06E-02	U	4.9E-02	4.9E-02	6.08E-02	pCi/g		RICHRC5017

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT911B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	-1.12E-02	U	4.4E-02	4.4E-02	1.09E-01	pCi/g	95.90%	RICHRC5006

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland SDG /RPT GRP: W02822 / 8454
LAB SAMPLE ID: D007E11B MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	0.00E+00	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLRR12S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
NI-63	4.46E+02		6.8E+00	3.3E+01	4.88E+00	pCi/g	106.46%	6.07E+02	73.43%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLRX14M MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
PU239/40	3.42E+00		2.8E-01	6.7E-01	1.54E-02	pCi/g	72.52%	3.41E+00	100.35%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT112S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
U-234	8.49E-01	J	1.2E-01	1.9E-01	2.23E-02	pCi/g	91.31%	8.67E-01	97.95%
U-235	3.36E-02	J	2.5E-02	2.6E-02	2.65E-02	pCi/g	91.31%	3.95E-02	85.07%
U-238	7.93E-01	J	1.2E-01	1.8E-01	2.98E-02	pCi/g	91.31%	9.08E-01	87.38%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT412S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
AM-241	4.16E+00		3.0E-01	7.9E-01	2.68E-02	pCi/g	75.12%	4.57E+00	91.09%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT414M MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
AM-241	3.65E+00		2.7E-01	6.8E-01	1.94E-02	pCi/g	83.49%	4.57E+00	79.97%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXLT712S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
CS-137	3.96E-01		5.6E-02	5.6E-02	4.02E-02	pCi/g		3.11E-01	127.32%
K-40	2.06E+01		2.3E+00	2.3E+00	3.26E-01	pCi/g		1.95E+01	105.55%
RA-226	1.12E+00		1.5E-01	1.5E-01	6.63E-02	pCi/g		1.15E+00	97.46%
RA-228	2.05E+00		2.8E-01	2.8E-01	1.29E-01	pCi/g		1.87E+00	109.71%
U-238DHP	1.57E+00		6.9E-01	6.9E-01	6.33E-01	pCi/g		1.05E+00	149.01%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXL912S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	1.00E+00		1.2E-01	3.1E-01	1.11E-01	pCi/g	94.00%	1.14E+00	87.62%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: D007E12S MATRIX: SOIL

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	9.26E-01		N/A	N/A	2.00E-03	mg/L	N/A	1.00E+00	92.60%

Number of Results:

MATRIX SPIKE RESULTS

LAB NAME: QUANTERRA, Richland **SDG: /RPT GRP:** W02822 / 8454
LAB SAMPLE ID: CXKEQ19W **MATRIX:** SOIL

ANALYTE	SPIKE RESULT* Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
NI-63	4.40E+02	7.0E+00	3.3E+01	5.33E+00	pCi/g	6.09E+00	6.08E+02	72.43%

Number of Results:

***Spike Result Corrected For Sample Result**

Result = IDL When Not Detected

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

MATRIX SPIKE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02822 / 8454
LAB SAMPLE ID: CXKEQ1HW MATRIX: SOIL

ANALYTE	SPIKE RESULT*	COUNTING Q ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	3.52E+01	N/A	N/A	8.00E-02	mg/kg	7.21E-01	4.01E+01	87.60%

Number of Results:

*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: W02822 / 8454
LAB SAMPLE ID: CXKEQ1KW MATRIX: SOIL

ANALYTE	SPIKE RESULT* Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.87E+02	N/A	N/A	8.00E-02	mg/kg	7.21E-01	6.45E+02	91.00%

Number of Results:

*Spike Result Corrected For Sample Result

Result = IDL When Not Detected

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

Quanterra Analytical Services, Inc
rptChemRadMatrixSpike; v3.41

0031

**Data Review Checklist
RADIOCHEMISTRY**

Lot Number: J99010176				
Client ID: BHI				
Due Date: 7/22/99				
QC Batch Number: 9182411			SDG Number:	
Method Test Parameter: SX - AMZY1				
Matrix: S2.1				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd 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? / 7/28/99	✓			PK ✓
5. Were all calculations checked at a minimum frequency?	✓			✓
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Sam Kamitzer
 Second Level Review: [Signature]

Date: 7-29-99
 Date: 7/19/99

Data Review Checklist
RADIOCHEMISTRY

7/27/99

Lot Number: J960108 J96010176				
Client ID: BAI				
Due Date: 7/22/99				
QC Batch Number: 9182408			SDG Number: 2822	
Method Test Parameter: SO-Fliss				
Matrix: Soil				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd 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?	✓	B X	✓ MCM	✓
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?	✓	M MCM	✓ S	✓
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: The water blank + soil spike OK, the soil blank + water spike low yields

OK to report per Kessner
7/28/99

First Level Review: [Signature] Date: 7-28-99
 Second Level Review: [Signature] Date: 8/19/99

Data Review Checklist
RADIOCHEMISTRY

Lot Number: J96010176				
Client ID: BHI				
Due Date: 7/22/99				
QC Batch Number: 9182409			SDG Number: W02822	
Method Test Parameter: SR WISO				
Matrix: soil				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd 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: Jaqueline Waddell Date: 7/22/99
 Second Level Review: [Signature] Date: 8/19/99

Data Review Checklist
RADIOCHEMISTRY

Lot Number: J96010126				
Client ID: 127642				
Due Date: 7-22-99				
QC Batch Number: 9182413		SDG Number: 2822		
Method Test Parameter: Gamma				
Matrix: Soil				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd 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: LCS recovery @ 149.0% for U-235DHP. Client requested U-235DHP at low abundance, therefore erratic recoveries. Report results w/ recoveries achieved.

First Level Review: [Signature]

Date: 7-22-99

Second Level Review: [Signature]

Date: 8/19/99

LS-038, Rev.5, 4/99

Data Review Checklist
RADIOCHEMISTRY

Lot Number: J9G01076				
Client ID: PGW				
Due Date: 7/24/99				
QC Batch Number: 9182414		SDG Number: W02822		
Method Test Parameter: TH - T ₀ S _c				
Matrix: Soil				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd 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: Magdaline Waddell
 Second Level Review: [Signature]

Date: 7/17/99
 Date: 8/19/99

Data Review Checklist RADIOCHEMISTRY

Lot Number: <u>396010176</u>				
Client ID: <u>PGWU7123/99 BHT</u>				
Due Date: <u>7/22/99</u>				
QC Batch Number: <u>9182407</u>		SDG Number: <u>W02822</u>		
Method Test Parameter: <u>SY-Ni63</u>				
Matrix: <u>Soil</u>				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd 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? <u>7/21/99</u>	-	✓		✓
5. Were all calculations checked at a minimum frequency?	✓			✓
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: *Agnes Waddell* Date: 7/22/99
 Second Level Review: *[Signature]* Date: 8/19/99



Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): <u>CXKEQ101</u>		<u>QC Batch 9194150</u>		
Lab Sample Numbers or SDG: <u>W02822</u>				
Method/Test/Parameter: <u>CR+6 in SOIL</u>		<u>RICHWC5005 R.3</u>		
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with 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 \leq 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 \leq 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?	✓			✓
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) analyzed at the beginning and end of analytical run or at minimum frequencies and within QC limits?			✓	

Review Item	Yes (S)	No (S)	N/A (S)	2 nd Level Review (S)
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:

01- PbCrO₄ spike required x20 dilution

Analyst: Roxie Ross

Date: 7/15/99

Second-Level Review: [Signature]

Date: 8/19/99

CHAIN OF
CUSTODY FORMS

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-072-02	Page 1 of 1
Collector Bowers, DL/Neilson, RJ		Company Contact Frank Corpuz		Telephone No. 373-1661	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil		Sampling Location 116 DR 1&2			SAF No. B99-072		
Ice Chest No. IT 36		Field Logbook No. EFL 1133-7		Method of Shipment Gov vehicle			
Shipped To Quanterra Incorporated		Offsite Property No. N/A			Bill of Lading/Air Bill No. N/A		
					COA R16DRIN6W0		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C								
	Type of Container	G	GT P	aG								
	No. of Container(s)	1	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL								

SPK Due 7-22-99
 W02822 JAG-010176
 SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time									
BOVND CXKEQ	Soil	6-18-99	0900	X	X	X						BOVND

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By <i>R. Nielsen</i>	Date/Time 6-20-99	Received By <i>Ref # 13</i>	Date/Time	(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 - Total Sr; Nickel-63 (2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV) Chromium Hex - 7196				Soil Water Vapor Other Solid Other Liquid	
Relinquished By <i>Ref ID</i>	Date/Time 7-1-99/0900	Received By <i>Doug Bowers</i>	Date/Time 7-1-99/0900						
Relinquished By <i>Doug Bowers</i>	Date/Time 7-1-99/0900	Received By <i>Frank</i>	Date/Time 7-1-99						
Relinquished By <i>Doug Bowers</i>	Date/Time 7-1-99/1053	Received By <i>Karen Klenning</i>	Date/Time 7-1-99						
LABORATORY SECTION	Received By	Title <i><100ca</i>						Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By				Date/Time		

0041

ERC Radiological Counting Facility Analysis Report

RCF Number RCF6227

Sample Date & Time 6/18/99 0900

Project ID: 116-DR-1

SAF Number: NONE

Date Analyzed 6/23/99 11:35:

Sample ID: BOVNM0

Gamma Energy Analysis

Nuclide	Activity (pCi/g)	Error (pCi/g)	MDC (pCi/g)
K-40	4.4E+01	+/- 4.5E+01	4.0E+01
Co-60	< 5.7E+00		5.7E+00
Cs-137	< 5.8E+00		5.8E+00
Eu-152	< 1.2E+01		1.2E+01
Eu-154	< 1.3E+01		1.3E+01
Eu-155	< 1.3E+01		1.3E+01
Th-232D	< 1.4E+01		1.4E+01
Th-234	< 6.2E+01		6.2E+01
U-235	< 3.5E+01		3.5E+01
U-238D	< 1.1E+01		1.1E+01
U-238	< 8.3E+02		8.3E+02
Am-241	< 8.0E+00		8.0E+00

BOVNM0

COPY

$0.21 * 1250 = 262$
 $14 * 1250 = 1.75 * 10^4$

250g
 Cat I
 B
 7/1/99

Total GEA (pCi/g) 4.4E+01 +/- 4.5E+01

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	2.1E-01	+/- 3.6E-01
Gross Beta	1.4E+01	+/- 1.4E+00

Alpha MDC (pCi/g)	1.8E-01
Beta MDC (pCi/g)	7.8E+00

Definitions:

All errors reported at 2 standard deviations.
 N/R = no result or analysis not requested. <MDC = Less than detection limit.
 All GEA results reported as "<" list the Minimum Detectable Concentration (MDC) value for that radionuclide.
 Rounding error may result in the reported total GEA activity differing from the sum of the > MDC GEA values in the second significant digit.

For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.
 The analysis of Np-237 is based on the activity of Pa-233.
 U-238dau is the activity of Pb-214 and Bi-214, short lived daughter products of U-238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.
 Th-232dau is the activity of Ac-228, Pb-212, and Tl-208, short lived daughter products of Th-232. Equilibrium between parent and daughter products may not exist in disturbed materials.
 Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.
 **The gross alpha results are not corrected for mass absorption
 # No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Analyst T. J. Snider 6/25/99

Report To _____ Fax _____

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 7-1-99 1053 SG#: W02822
Work Order Number: 196010176 SAF #: B99-072
Shipping Container ID: 99-36 Chain of Custody #: B99-072-02

- 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 40 C
- 5. Vermiculite/packing materials is Wet Dry
- 6. Number of samples in shipping container: 3
- 7. Sample holding times exceeded? Yes No

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

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

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

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

Sample Custodian/Laboratory: [Signature] Date: 7-1-99

Telephoned To: _____ On _____ By _____

COC Signature Page

W02822

Lot or Batch #:	Initials/Date	Procedure #
9182411		
Released By	<u>BRA 7-2-99</u>	<u>RichRC0009</u>
Received	<u>RL 7/2/99</u>	<u>RichRC5013</u>
Released By	<u>WL 7-8-99</u>	<u>n/a</u>
Received	<u>SK 7/8/99</u>	<u>RC5199</u>
Released By	<u>SK 7/15/99</u>	<u>n/a</u>
Received	<u>hal 7/15/99</u>	<u>RichRC5080</u>
Released By	<u>hal 7/27/99</u>	<u>n/a</u>
Received	<u>SM 7/27/99</u>	<u>RichRC5003</u>
Released By	<u>SM 7/27/99</u>	<u>n/a</u>
Received	<u>7/27/99</u>	<u>RICHRC0008</u>
Released By	<u>7/28/99</u>	<u>n/a</u>
Received	<u>PK 7-28-99</u>	<u>RichRC0002</u>
Released By	<u>PK 7-29-99</u>	<u>n/a</u>
Received		

RQC053

Quanterra Incorporated
RAD PREP BENCH WORKSHEET

Run Date: 7/01/99
Time: 17:08:58

Prep	Sep1	Sep2	Samples Covered
_____	_____	_____	Labware Labeled
_____	_____	_____	Verify Test/Container
_____	_____	_____	Samples Ordered Sequentially
_____	_____	_____	Logbooks Entered

 *
 * QC BATCH: 9182411 *
 *

Prep Dt/Tm/Person:	7/01/99	0
Sep1 Dt/Tm/Person:	0/00/00	000000
Sep2 Dt/Tm/Person:	0/00/00	000000
Cocktail Date/Time:	0/00/00	

WORKS
 SX: Americium-241 by Alpha Spec
 6I: PuAm PrpRC5013/RC5019, SepRC5080 (5003)/RC5010 (5039)
 5I: RCH: HANFORD ANALYTICAL

ANL DUE	LOT#,MSRUN#/ WORK ORDER	CLIENT MATRIX	INIT/FINAL	DISH	GEOM	PPT1WT	pH	COUNT TIME	MID/AVE DATE/TIME	TRACER ID/ SPIKE ID	CRDL	UNITS
7/22/99	J9G010176-001 CXKKEQ-1-0EX	SOLID									1	pCi/g
7/22/99	J9G010176-001 CXKKEQ-1-06	SOLID									1	pCi/g
0/00/00	J9G010000-411 CXLT4-1-01B	SOLID									1	pCi/g
0/00/00	J9G010000-411 CXLT4-1-02C	SOLID									1	pCi/g
0/00/00	J9G010000-411 CXLT4-1-03B X	SOLID									1	pCi/g
0/00/00	J9G010000-411 CXLT4-1-04C M	SOLID									1	pCi/g

PRIORITY

NUMBER OF WORK ORDERS IN BATCH: 6

0055

COC Signature Page

W02822
Lot or Batch #: 9182408

	Initials/Date	Procedure #
Released By	<u>ARA 7-2-99</u>	<u>RICHRC0009</u>
Received	<u>ra 7/2/99</u>	
Released By	<u>WH 7-8-99</u> SK 7/8/99	n/a
Received	<u>SK 7/8/99</u>	<u>RC5019</u>
Released By	<u>SK 7/15/99</u>	n/a
Received	<u>hal 7/15/99</u>	<u>RICHRC5080</u>
Released By	<u>hal 7/23/99</u>	n/a
Received	<u>SM 7-23-99</u>	<u>RARC 5039</u>
Released By	<u>SM 7-26-99</u>	n/a
Received	<u>✓ 7/26/99</u>	<u>RICHRC0007</u>
Released By	<u>✓ 7/27/99</u>	n/a
Received	<u>PK 7-28-99</u>	<u>RICHRC0002</u>
Released By	<u>PK 7-28-99</u>	n/a
Received		

RQC053

Quanterra Incorporated
RAD PREP BENCH WORKSHEET

Run Date: 7/01/99
Time: 17:07:49

<u>Prep</u>	<u>Sep1</u>	<u>Sep2</u>	
_____	_____	_____	Samples Covered
_____	_____	_____	Labware Labeled
_____	_____	_____	Verify Test/Container
_____	_____	_____	Samples Ordered Sequentially
_____	_____	_____	Logbooks Entered

 *
 * QC BATCH: 9182408 *
 *

Prep Dt/Tm/Person:	7/01/99	0
Sep1 Dt/Tm/Person:	0/00/00	000000
Sep2 Dt/Tm/Person:	0/00/00	000000
Cocktail Date/Time:	0/00/00	

WO2802
 SO: Plutonium-238,239/40 by Alpha Spec
 6I: PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
 SI: RCH: HANFORD ANALYTICAL

<u>ANL DUE</u>	<u>LOT#,MSRUN#/ WORK ORDER</u>	<u>CLIENT MATRIX</u>	<u>INIT/ FINAL</u>	<u>DISH</u>	<u>GEOM</u>	<u>PPT1WT</u>	<u>pH</u>	<u>COUNT TIME</u>	<u>MID/AVE DATE/TIME</u>	<u>TRACER ID/ SPIKE ID</u>	<u>CRDL</u>	<u>UNITS</u>
7/22/99	J9G010176-001 CXKEQ-1-0CX	SOLID									1	pCi/g
7/22/99	J9G010176-001 CXKEQ-1-05	SOLID									1	pCi/g
0/00/00	J9G010000-408 CXLRX-1-01B	SOLID									1	pCi/g
0/00/00	J9G010000-408 CXLRX-1-02C	SOLID									1	pCi/g
0/00/00	J9G010000-408 CXLRX-1-03B X	SOLID									1	pCi/g
0/00/00	J9G010000-408 CXLRX-1-04C M	SOLID									1	pCi/g

PRIORITY

NUMBER OF WORK ORDERS IN BATCH: 6

0047

COC Signature Page

W02802

Lot or Batch #:	Initials/Date	Procedure #
9182409		
Released By	ABA 7-2-99	RichRC0009
Received	TRC 7/2/99	RC 5013
Released By	TRC 7-8-99	n/a
Received	fue - SK 7/8/99	RC5019
Released By	SK 7/14/99	n/a
Received	fue 07-14-99	RC 5079
Released By	fue 07-15-99	n/a
Received	SM 7-15-99	RichRC5030
Released By	SM 7-20-99	n/a
Received	SM 7-20-99	RichRC5039
Released By	SM 7-20-99	n/a
Received	PK 7-20-99	RICH RD0008
Released By	fue 7/21/99	n/a
Received	fue 7/21/99	RICHRC0002h
Released	fue 7/22/99	

RQC053

Quanterra Incorporated
RAD PREP BENCH WORKSHEET

Run Date: 7/01/99
Time: 17:08:15

Prep	Sep1	Sep2	
_____	_____	_____	Samples Covered
_____	_____	_____	Labware Labeled
_____	_____	_____	Verify Test/Container
_____	_____	_____	Samples Ordered Sequentially
_____	_____	_____	Logbooks Entered

 *
 * QC BATCH: 9182409 *
 *

Prep Dt/Tm/Person: 7/01/99 0
 Sep1 Dt/Tm/Person: 0/00/00 000000
 Sep2 Dt/Tm/Person: 0/00/00 000000
 Cocktail Date/Time: 0/00/00

W02802
 SR: Uranium-234,235,238 by Alpha Spec
 7S: UIso PrpRC5013/RC5019, SepRC5079(5039)
 5I: RCH: HANFORD ANALYTICAL

ANL DUE	LOT#,MSRUN#/ WORK ORDER	CLIENT MATRIX	INIT/ FINAL	DISH	GEOM	PPT1WT	pH	COUNT TIME	MID/AVE DATE/TIME	TRACER ID/ SPIKE ID	CRDL	UNITS
7/22/99	J9G010176-001 CXK8Q-1-0DX	SOLID										pCi/g
7/22/99	J9G010176-001 CXK8Q-1-02	SOLID										pCi/g
0/00/00	J9G010000-409 CXLT1-1-01B	SOLID										pCi/g
0/00/00	J9G010000-409 CXLT1-1-02C	SOLID										pCi/g

PRIORITY

NUMBER OF WORK ORDERS IN BATCH: 4

0049

COC Signature Page

Lot or Batch #:	Initials/Date	Procedure #
W02822 9182413		
Released By	<u>RA 7-2-99</u>	<u>Rinkr C0009</u>
Received	<u>RA 7/2/99</u>	<u>RC 5013</u>
Released By	<u>WK 7-8-99</u>	<u>n/a</u>
Received	<u>J 7/8/99</u>	<u>RICKR00007</u>
Released By	<u>J 7/20/99</u>	<u>n/a</u>
Received	<u>DUC 7-20-99</u>	<u>RICKR0002-2</u>
Released By	<u>DUC 7-22-99</u>	<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		

RQC053

Quanterra Incorporated
RAD PREP BENCH WORKSHEET

Run Date: 7/01/99
Time: 17:09:28

<u>Prep</u>	<u>Sep1</u>	<u>Sep2</u>	
_____	_____	_____	Samples Covered
_____	_____	_____	Labware Labeled
_____	_____	_____	Verify Test/Container
_____	_____	_____	Samples Ordered Sequentially
_____	_____	_____	Logbooks Entered

 * QC BATCH: 9182413 *
 *

Prep Dt/Tm/Person:	7/01/99	0
Sep1 Dt/Tm/Person:	0/00/00	000000
Sep2 Dt/Tm/Person:	0/00/00	000000
Cocktail Date/Time:	0/00/00	

W02822
 T9: Gamma by HPGE 10 day ingrowth
 AX: Gamma PrpRC5013/5017
 5I: RCH: HANFORD ANALYTICAL

<u>ANL DUE</u>	<u>LOT#,MSRUN#/ WORK ORDER</u>	<u>CLIENT MATRIX</u>	<u>INIT/ FINAL</u>	<u>DISH</u>	<u>GEOM</u>	<u>PPT1WT</u>	<u>pH</u>	<u>COUNT TIME</u>	<u>MID/AVE DATE/TIME</u>	<u>TRACER ID/ SPIKE ID</u>	<u>CRDL</u>	<u>UNITS</u>
7/22/99	J9G010176-001 CXKQ-1-0FX	SOLID									0.1	pCi/g
7/22/99	J9G010176-001 CXKQ-1-08	SOLID									0.1	pCi/g
0/00/00	J9G010000-413 CXLT7-1-01B	SOLID									0.1	pCi/g
0/00/00	J9G010000-413 CXLT7-1-02C	SOLID									0.1	pCi/g

PRIORITY

NUMBER OF WORK ORDERS IN BATCH: 4

0051

COC Signature Page

W02822

Lot or Batch #:	Initials/Date	Procedure #
9182414		
Released By	FA 7-2-99	Pickec0009
Received	m 7/2/99	Rich RC 5013
Released By	WR 7-8-99	n/a
Received	SK 7/8/99	RC5013
Released By	SK 7/12/99	n/a
Received	DM 7-14-99	RICHRC 5006
Released By	DM 7-15-99	n/a
Received	f 7/16/99 mlister	RICHRC0003
Released By	f 7/16/99	n/a
Received	JW 7/16/99	RICHRC0002h
Released By	JW 7/17/99	n/a
Received		
Released By		n/a
Received		

RQC053

Quanterra Incorporated
RAD PREP BENCH WORKSHEET

Run Date: 7/01/99
Time: 17:10:00

Prep	Sep1	Sep2	
---	---	---	Samples Covered
---	---	---	Labware Labeled
---	---	---	Verify Test/Container
---	---	---	Samples Ordered Sequentially
---	---	---	Logbooks Entered

 *
 * QC BATCH: 9182414 *
 *

Prep Dt/Tm/Person: 7/01/99 0
 Sep1 Dt/Tm/Person: 0/00/00 000000
 Sep2 Dt/Tm/Person: 0/00/00 000000
 Cocktail Date/Time: 0/00/00

W02822
 TH: Total Strontium by GPC
 CH: Sr-Total PrpRC5013, SepRC5006
 5I: RCH: HANFORD ANALYTICAL

ANL DUE	LOT#,MSRUN#/ WORK ORDER	CLIENT MATRIX	INIT/ FINAL	DISH	GEOM	PPT1WT	pH	COUNT TIME	MID/AVE DATE/TIME	TRACER ID/ SPIKE ID	CRDL	UNITS
7/22/99	J9G010176-001 CXKKEQ-1-0GX	SOLID									1	pCi/g
7/22/99	J9G010176-001 CXKKEQ-1-03	SOLID									1	pCi/g
0/00/00	J9G010000-414 CXLT9-1-01B	SOLID									1	pCi/g
0/00/00	J9G010000-414 CXLT9-1-02C	SOLID									1	pCi/g

PRIORITY

NUMBER OF WORK ORDERS IN BATCH: 4

0053

COC Signature Page

Lot or Batch #:	Initials/Date	Procedure #
W02822 9182407		
Released By	DA 7-2-99	Richc0009
Received	DA 7/2/99	
Released By	WR 7-8-99	n/a
Received	SK 7/8/99	RC5019
Released By	SK 7/15/99	n/a
Received	QB 7/15/99	RC5069
Released By	QB 7/19/99	n/a
Received	DA 7/19/99	RICHRC0009
Released By	7/21/99	n/a
Received	7/22/99	RICHRC0002
Released By	7/22/99	n/a
Received		
Released By		n/a
Received		

RQC053

Quanterra Incorporated
RAD PREP BENCH WORKSHEET

Run Date: 7/01/99
Time: 17:06:59

<u>Prep</u>	<u>Sep1</u>	<u>Sep2</u>	
_____	_____	_____	Samples Covered
_____	_____	_____	Labware Labeled
_____	_____	_____	Verify Test/Container
_____	_____	_____	Samples Ordered Sequentially
_____	_____	_____	Logbooks Entered

 * QC BATCH: 9182407 *
 *

Prep Dt/Tm/Person:	7/01/99	0
Sep1 Dt/Tm/Person:	0/00/00	000000
Sep2 Dt/Tm/Person:	0/00/00	000000
Cocktail Date/Time:	0/00/00	

W02822

S4: Nickel by ICP and Nickel-63 by Liquid Scint
AF: Ni-63 PrpRC5013/5019, SepRC5069
5I: RCH: HANFORD ANALYTICAL

ANL DUE	LOT#,MSRUN#/ WORK ORDER	CLIENT MATRIX	INIT/FINAL	DISH	GEOM	PPT1WT	pH	COUNT TIME	MID/AVE DATE/TIME	TRACER ID/ SPIKE ID	CRDL	UNITS
7/22/99	J9G010176-001 CXKKEQ-1-0AX	SOLID									30	pCi/g
7/22/99	J9G010176-001 CXKKEQ-1-04	SOLID									30	pCi/g
7/22/99	J9G010176-001 CXKKEQ-1-09S	SOLID									30	pCi/g
0/00/00	J9G010000-407 CXLRR-1-01B	SOLID									30	pCi/g
0/00/00	J9G010000-407 CXLRR-1-02C	SOLID									30	pCi/g
0/00/00	J9G010000-407 CXLRR-1-03B N	SOLID									30	pCi/g

PRIORITY

NUMBER OF WORK ORDERS IN BATCH: 6

0055

COC Signature Page

Lot or Batch #: 9194150	Initials/Date	Procedure #
Released By	MA 7-13-99	RichWC0009
Received	(R) 7-13-99	RICHWC5005 R3
Released By	(R) 7/15/99	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		

RQC050

Quanterra Incorporated
WET CHEM BATCHSHEET
Richland

Run Date: 7/13/99
Time: 7:43:00

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)	INITIALS:	DATA ENTRY:
QC BATCH #:	9194150	PREP	INITIALS
PREP DATE:	7/13/99	ANAL	DATE
USER:	ROSSR		

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
CXKEQ-1-01	J-9G010176-001	XX A DW EA 5I			BOVNKO
CXKEQ-1-0H	J-9G010176-001-S	XX A DW EA 5I			BOVNKO
CXKEQ-1-0K	J-9G010176-001-S	XX A DW EA 5I			BOVNKO
CXKEQ-1-0J	J-9G010176-001-X	XX A DW EA 5I			BOVNKO DUP
D007E-1-01	J-9G130000-150-B	XX A DW EA 5I			INTRA-LAB BLANK
D007E-1-02	J-9G130000-150-C	XX A DW EA 5I			INTRA-LAB CHECK

Control Limits

(75-125)
(75-125)
(80-120)

0057

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

July 28, 1999

Attention: Joan Kessner



Project Number	:	550.202
SDG	:	W02822
Number of Samples	:	One (1)
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	July 1, 1999

II. Introduction

On July 1, 1999, one (1) "soil" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The sample was received at Quanterra, St. Louis on 07/02/99 at a temperature of 16° C. The ice in the cooler was melted. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client ID:

<u>St. Louis ID</u>	<u>BHI ID</u>	<u>SAF ID</u>	<u>Matrix</u>	<u>Date of Receipt</u>
21672-001	B0VNK0	B99-072	SOIL	01-JUL-99

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: Metals by ICP - 6010A
 Mercury - 7470

Deviation from Request: none

000002

Bechtel Hanford Incorporated
July 28, 1999
Project Number: 550.202
SDG: W02822
Page 2

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.

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.

The recoveries of the matrix spike and/or the matrix spike duplicate for the following list of elements were not within the 75%-125% range, therefore all associated data was flagged with an "N".

	% REC MS	% REC MSD
Chromium	91.0*	132.8
Mercury	45.5	73.9

- Data met criteria-for reference only

Bechtel Hanford Incorporated
July 28, 1999
Project Number: 550.202
SDG: W02822
Page 3

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

Reviewed and approved:

A handwritten signature in cursive script that reads "Sheila M. Louvier".

Sheila M. Louvier
St. Louis Project Manager

Quanterra St. Louis

Sample Preparation Methods

“Quanterra Standard” Preparation Method Used Unless Otherwise Noted

Organic Preparation Methods	Matrix	Analysis	SW846 Reference
Separatory Funnel Liquid-Liquid <i>(Quanterra Standard)</i>	Liquid	Pesticides, PCBs, Semivolatiles, TPH (Diesel Range Organics), Herbicides, TCLP (Semivolatiles, Pesticides, Herbicides), Phenols, PAHs,	3510C
Continuous Liquid-Liquid	Liquid	Pesticides, Semivolatiles	3520C
Ultrasonic <i>(Quanterra Standard)</i>	Solid	Pesticides, PCBs, Semivolatiles, Herbicides, PAHs	3550B
Pressurized Fluid Extraction	Solid	Pesticides, PCBs, Semivolatiles, PAHs	3545
Waste Dilution <i>(Quanterra Standard)</i>	Solvent/Oil	Pesticides, PCBs, Semivolatiles, TPH, Herbicides, TCLP (Semivolatiles, Pesticides, Herbicides)	3580A
Purge and Trap <i>(Quanterra Standard)</i>	All	Volatiles, Gasoline Range Organics	5030B
Toxicity Characteristic Leaching Procedure <i>(Quanterra Standard)</i>	All	Pesticides, Semivolatiles, Herbicides, Volatiles, Metals	1311
Inorganic Preparation Methods	Matrix	Analysis	SW846 Reference
Acid Digestion <i>(Quanterra Standard)</i>	Liquid	ICP or FLAA Metals	3010A
Acid Digestion – Total Recoverable	Liquid	ICP or FLAA Metals	3005A
Acid Digestion <i>(Quanterra Standard)</i>	Liquid	GFAA Metals	3020A
Acid Digestion <i>(Quanterra Standard)</i>	Solid	ICP, FLAA, or GFAA Metals	3050B

W07822

Quanterra July 02, 1999 04:22 pm
Account: 10722 Project: 550.202 Quanterra-Richland QAS No. 550.202 Rev. 3
Master Sample Login: 21672

Project Manager: S. Louvier

Reviewed by and Date: *J. Smith 7-2-99*

Sample Header Template:

Sample No.	Client ID	C-Matrix	Date Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers: # Filled)
21672-001	BOVNR0	Soil	18-JUN-99 09:00	01-JUL-99 10:53	22-JUL-99	AIRBORNE	3*	R8865-001
	SAF B99-072	ICAP - AS, CR, PB ONLY						
1	AN - Amber Glass-250ML	HG/7471/Q4	S	COLD	19-JUL-99	16-JUL-99	S6K	(451450:99)
1		ICAP/6010/Q4	S	COLD	19-JUL-99	15-DEC-99	S6K	(451450:99)
1		PM/IT/Q4	S	COLD	19-JUL-99	15-DEC-99	S6K	(451450:99)
1		RAD/CSCREEN/Q4	S	COLD	19-JUL-99	28-DEC-99	S6K	(451450:99)
21672-001MS	BOVNR0	Soil	18-JUN-99 09:00	01-JUL-99 10:53	22-JUL-99	AIRBORNE	3*	R8865-001
	SAF B99-072	ICAP - AS, CR, PB ONLY						
1	AN - Amber Glass-250ML	HG/7471/Q4	S	COLD	19-JUL-99	16-JUL-99	S6K	(451450:99)
1		ICAP/6010/Q4	S	COLD	19-JUL-99	15-DEC-99	S6K	(451450:99)
21672-001MSD	BOVNR0	Soil	18-JUN-99 09:00	01-JUL-99 10:53	22-JUL-99	AIRBORNE	3*	R8865-001
	SAF B99-072	ICAP - AS, CR, PB ONLY						
1	AN - Amber Glass-250ML	HG/7471/Q4	S	COLD	19-JUL-99	16-JUL-99	S6K	(451450:99)
1		ICAP/6010/Q4	S	COLD	19-JUL-99	15-DEC-99	S6K	(451450:99)

000005

3**Sample has not been rad screened.

W02822
Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-072-02

Page 1 of 1

Collector
Bowers, DL/Neilson, RJ

Company Contact
Frank Corpuz
Telephone No.
373-1661

Project Coordinator
TRENT, SJ

Price Code 8L
Data Turnaround
21 Days

Project Designation
Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil

Sampling Location
116 DR 1&2

SAF No.
B99-072

Ice Chest No.
IT 36

Field Logbook No.
EFL 1133-7

Method of Shipment
Gov vehicle

Shipped To
Quanterra Incorporated

Offsite Property No.
N/A

Bill of Lading/Air Bill No.
N/A

COA
R16DR1N6W0

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C
		G	None	None
Type of Container	1	1	1	
No. of Container(s)	IL	20g	250mL	
Special Handling and/or Storage				

SDA Due 7-22-99
SAMPLE ANALYSIS
W02822 JAG-010176

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.
BOUNKD CXKEQ	Soil	6-18-99	0900	X	X	

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By Neilson Date/Time 6-18-99	Received By Ref # 13 Date/Time	(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 - Total Sr; Nickel-63 (2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196	Soil Water Vapor Other Solid Other Liquid
Relinquished By Ref ID Date/Time 7-1-99/0900	Received By Doug Bowers Date/Time 7-1-99/0900		
Relinquished By Doug Bowers Date/Time 7-1-99/0900	Received By Frank Date/Time 7-1-99		
Relinquished By Doug Bowers Date/Time 7-1-99/1053	Received By Karen Klenker Date/Time 7-1-99		
LABORATORY SECTION	Received By Relinquished By Karen Klenker Date/Time 7-1-99/1600	DONE IN Richland Done 7/2/99	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By L	Date/Time

00000000

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 7-199 1053 SG#: W02822

Work Order Number: 196010176 SAF #: B99-072

Shipping Container ID: 927-36 Chain of Custody #: B99-072-02

- 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 40 c
- 5. Vermiculite/packing materials is Wet [] Dry []
- 6. Number of samples in shipping container: 3
- 7. Sample holding times exceeded? Yes [] No []

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

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

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

Sample Custodian/Laboratory: [Signature] Date: 7-1-99

Telephoned To: _____ On _____ By _____

000007

Login No.: 21672

Condition Upon Receipt Variance Report
St. Louis Laboratory

W02822

Client: Richland / BHI

Date: 07/2/99 Time: 0845

Project No: 550.202

Initiated by: [Signature]

Shipper/No: AIRBORNE 2669768544

RFA/COC Numbers: 899-072-02

Condition/Variance (Check all that apply):

1. <input type="checkbox"/> Sample received broken/leaking.	8. <input type="checkbox"/> Sample ID on container does not match sample ID on paperwork. Explain: _____
2. <input type="checkbox"/> Sample received without proper preservative.	
<input checked="" type="checkbox"/> Cooler temperature not within 4-C ± 2-C Record temperature: <u>16°</u>	
<input type="checkbox"/> pH _____	9. <input type="checkbox"/> All coolers on airbill not received with shipment.
<input type="checkbox"/> other: _____	10. <input type="checkbox"/> Other (explain below): _____ _____ _____
3. <input type="checkbox"/> Sample received in improper container.	
4. <input type="checkbox"/> Sample received without proper paperwork. Explain: _____	
5. <input type="checkbox"/> Paperwork received without sample.	
6. <input type="checkbox"/> No sample ID on sample container.	
7. <input type="checkbox"/> Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply).	

No variances were noted during sample receipt.

Cooler Temperature Upon Receipt: 16°

Temperature Variance Does Not Affect the Following Analyses: _____

Notes: Upon receipt, ice was completely melted, in result the temperature of the cooler wasn't in proper degrees

Corrective Action:

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

Sample(s) processed "as is".
 Comments: _____
 Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: [Signature] Date: 7/2/99

Project Management Review: Jennifer Smith Date: 7/2/99

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.202

Category: ICAP Metals
Method: EPA 6010
Matrix: SOLID

Sample Date : 06/18/99
Receipt Date : 07/01/99
Report Date : 07/21/99

Client ID: BOVNK0

Quanterra ID : 21672-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection	
								Limit	Dilution
Arsenic	7440-38-2	QCBLK202843-1	07/12/99	07/13/99	0.98	MG/KG	B	31.2	1
Chromium	7440-47-3	QCBLK202843-1	07/12/99	07/13/99	17.9	MG/KG	N	1.0	1
Lead	7439-92-1	QCBLK202843-1	07/12/99	07/13/99	1.9	MG/KG	B	10.4	1

000010

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.202

Category: ICAP Metals
Method: EPA 6010
Matrix: SOLID

Sample Date : 06/18/99
Receipt Date : 07/01/99
Report Date : 07/21/99

Client ID: B0VVK0

Quanterra ID : 21672-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result Unit	Detection		
						Qual.	Limit	Dilution
Arsenic	7440-38-2	QCBLK202843-1	07/12/99	07/13/99	99 %REC			1
Chromium	7440-47-3	QCBLK202843-1	07/12/99	07/13/99	91 %REC			1
Lead	7439-92-1	QCBLK202843-1	07/12/99	07/13/99	94 %REC			1

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3350 George Washington Way
Richland, WA 99352

Project: 550.202

Category: ICAP Metals
Method: EPA 6010
Matrix: SOLID

Sample Date : 06/18/99
Receipt Date : 07/01/99
Report Date : 07/21/99

Quanterra ID : 21672-001MSD

Client ID: BOVNKO

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Detection		
							Qual.	Limit	Dilution
Arsenic	7440-38-2	QCBLK202843-1	07/12/99	07/13/99	119	%REC			1
Chromium	7440-47-3	QCBLK202843-1	07/12/99	07/13/99	133	%REC	N		1
Lead	7439-92-1	QCBLK202843-1	07/12/99	07/13/99	113	%REC			1

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Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.202

Category: Mercury
Method: EPA 7471
Matrix: SOLID

Sample Date : 06/18/99
Receipt Date : 07/01/99
Report Date : 07/21/99

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOVNK0	21672-001	Mercury	7439-97-6	QCBLK202810-1	07/12/99	07/12/99	0.09	MG/KG	N	0.034	1
BOVNK0	21672-001MS	Mercury	7439-97-6	QCBLK202810-1	07/12/99	07/12/99	46	%REC	N		1
BOVNK0	21672-001MSD	Mercury	7439-97-6	QCBLK202810-1	07/12/99	07/13/99	74	%REC	N		1
NA	QCLCS202810-1	Mercury	7439-97-6	QCBLK202810-1	07/12/99	07/12/99	91	%REC			2
NA	QCBLK202810-1	Mercury	7439-97-6	QCBLK202810-1	07/12/99	07/12/99	0.017	MG/KG	U	0.033	1

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA_MO Contract: 550.202
Lab Code: ITMO Case No.: SAS No.: SDG No.: W02822
SOW No.: SW846

Table with 2 columns: EPA Sample No. and Lab Sample ID. Rows include BOVNKO, BOVNKOSD, BOVNKOS and their corresponding Lab Sample IDs.

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes - were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above.

Signature: Name:
Date: Title:

000016

