

Date: 12 March 2002
 To: Bechtel Hanford Inc. (technical representative)
 From: TechLaw, Inc.
 Project: 200-TW-1&2 - Soil Sampling
 Subject: Inorganics - Data Package No. W03587-ST (SDG No. W03587)

INTRODUCTION

This memo presents the results of data validation on Data Package No. W03587-ST prepared by Severn Trent Services (ST). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B12C89-B	8/23/01	Soil	C	See note 2, 3 & 4*
B12DC1-A	8/24/01	Soil	C	See note 1, 2 & 4*
B12ML4-A	8/26/01	Soil	C	See note 2 & 4
B12ML5-A	8/27/01	Soil	C	See note 2
B12ML6-A	8/27/01	Soil	C	See note 2
B12ML7	8/28/01	Soil	C	See note 2

* - Laboratory reported the sample arrived without an intact custody seal.

1 - Metals by 6010B (aluminum, bismuth, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, silver, sodium, vanadium, zinc); mercury by 7470.

2 - Metals by 6010B (cadmium, chromium (total), copper, lead, nickel, silver); mercury by 7470.

3 - TCLP by 6010B (chromium)

4 - TCLP by 6010B (lead)

Data validation was conducted in accordance with the BHI validation statement of work and the 200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan, DOE/RL-2000-38, Rev. 0, February 2001. Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

000001

RECEIVED
 AUG 19 2002
 EDMC

DATA QUALITY OBJECTIVES

- **Holding Times/Preservation**

Analytical holding times for ICP metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements is 28 days for mercury and 6 months for ICP metals.

Due to a lack of proper preservation (cooler temperatures of 17°C and 18°C), all ICP metal result in all samples but B12ML7 were qualified as estimates and flagged "J".

All other holding times were acceptable.

- **Blanks**

Preparation (Method) Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the target required quantitation limit (TRQL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the IDL and less than or equal to the TRQL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

Due to laboratory blank contamination, all TCLP lead results were qualified as estimates and flagged "J".

All preparation blank results were acceptable.

000002

Field Blanks

No field blanks were submitted for analysis, therefore, no field blank data was available for review.

- **Accuracy**

Matrix Spike

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must fall within the range of 70-130%. Samples with a spike recovery of less than 25% and a sample result below the instrument detection limit (IDL) are rejected and flagged "UR". Samples with a spike recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All matrix spike recovery results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Laboratory duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Results must be within relative percent difference (RPD) limits of plus or minus 35% for soil samples. If RPD values are out of specification and the sample concentration is greater than five times the TRQL, all associated sample results are qualified as estimated and flagged "J". If RPD values are plus or minus two times the TRQL and the sample concentration is less than five times the TRQL, all associated sample results are qualified as estimated and flagged "J/UJ". The performance criteria for laboratory duplicates are an RPD less than 35% for positive sample results greater than five times the TRQL or plus or minus 2 times the TRQL for positive sample results less than five times the TRQL. Sample results outside the criteria are qualified as estimates and flagged "J/UJ".

Due to an RPD of 51%, the chromium results in samples B12C89-B and B12DC1-A were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

000003

Field Duplicate Samples

No field duplicate samples were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against 200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan, DOE/RL-2000-38, Rev. 0, February 2001 target required quantitation limits (TRQL) to ensure that laboratory detection levels meet the required criteria. All reported laboratory detection levels met the analyte specific TRQL.

- **Completeness**

Data package No. W03587-ST was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). Due to the laboratory not analyzing for all requested analytes, the completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to a lack of proper preservation (cooler temperatures of 17°C and 18°C), all ICP metal result in all samples but B12ML7 were qualified as estimates and flagged "J". Due to an RPD of 51%, the chromium results in samples B12C89-B and B12DC1-A were qualified as estimates and flagged "J". Due to laboratory blank contamination, all TCLP lead results were qualified as estimates and flagged "J". Data flagged 'J' is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-2000-38, Rev. 0, *200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan*, February 2001.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

000008

DATA QUALIFICATION SUMMARY

SDG: W03587	REVIEWER: TLI	DATE: 3/12/02	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Chromium	J	B12C89-B B12DC1-A	RPD
TCLP lead	J	All	Blank contamination
All	J	All except B12ML7	Sample preservation

000009

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000010

BECHTEL HANFORD, INC.

Client Sample ID: B12C89-B

TOTAL Metals

Lot-Sample #....: F1H290206-002

Matrix.....: SOLID

Date Sampled....: 08/23/01

Date Received...: 08/29/01

% Moisture.....: 13

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 1247187						
Silver	3.1	1.1	mg/kg	SW846 6010B	09/04-09/14/01	EJQ4N1A8
		Dilution Factor: 1		MDL.....: 1.1		
Cadmium	ND	0.57	mg/kg	SW846 6010B	09/04-09/07/01	EJQ4N1A9
		Dilution Factor: 1		MDL.....: 0.20		
Chromium	142	1.1	mg/kg	SW846 6010B	09/04-09/07/01	EJQ4N1A9
		Dilution Factor: 1		MDL.....: 0.34		
Copper	13.6	2.9	mg/kg	SW846 6010B	09/04-09/07/01	EJQ4N1A8
		Dilution Factor: 1		MDL.....: 0.44		
Nickel	22.7	4.6	mg/kg	SW846 6010B	09/04-09/07/01	EJQ4N1A9
		Dilution Factor: 1		MDL.....: 0.99		
Lead	349	11.5	mg/kg	SW846 6010B	09/04-09/07/01	EJQ4N1A8
		Dilution Factor: 1		MDL.....: 3.7		
Prep Batch #....: 1248153						
Mercury	0.12	0.11	mg/kg	SW846 Hg Mod 7470	09/05/01	EJQ4N1A9
		Dilution Factor: 1		MDL.....: 0.028		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Rz
2/17/02

BECHTEL HANFORD, INC.

Client Sample ID: B12DC1-A

TOTAL Metals

Lot-Sample #...: F1H290206-001

Matrix.....: SOLID

Date Sampled...: 08/24/01

Date Received...: 08/29/01

% Moisture.....: 10

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Prep Batch #...: 1247187							
Silver	1.9	1.1	mg/kg		SW846 6010B	09/04-09/14/01	EJQX81CJ
		Dilution Factor: 1			MDL.....: 0.11		
Aluminum	9630	22.2	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81CM
		Dilution Factor: 1			MDL.....: 2.7		
Calcium	11900	556	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81CQ
		Dilution Factor: 1			MDL.....: 10.7		
Cadmium	ND U	0.56	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81CU
		Dilution Factor: 1			MDL.....: 0.022		
Chromium	73.2	1.1	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81CX
		Dilution Factor: 1			MDL.....: 0.10		
Copper	20.5	2.8	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81C2
		Dilution Factor: 1			MDL.....: 0.42		
Iron	34900	11.1	mg/kg		SW846 6010B	09/04-09/14/01	EJQX81C5
		Dilution Factor: 1			MDL.....: 2.5		
Magnesium	6460	556	mg/kg		SW846 6010B	09/04-09/14/01	EJQX81C8
		Dilution Factor: 1			MDL.....: 10.4		
Manganese	1650	1.7	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81DC
		Dilution Factor: 1			MDL.....: 0.067		
Molybdenum	ND U	4.4	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81DF
		Dilution Factor: 1			MDL.....: 0.97		
Nickel	66.6	4.4	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81DJ
		Dilution Factor: 1			MDL.....: 0.96		
Lead	308	0.33	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81DM
		Dilution Factor: 1			MDL.....: 0.17		
Vanadium	88.4	5.6	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81DQ
		Dilution Factor: 1			MDL.....: 0.43		
Zinc	127	2.2	mg/kg		SW846 6010B	09/04-09/07/01	EJQX81DU
		Dilution Factor: 1			MDL.....: 0.76		

(Continued on next page)

ke 2/17/02

BECHTEL HANFORD, INC.

Client Sample ID: B12DC1-A

TOTAL Metals

Lot-Sample #...: F1H290206-001

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Potassium	1900	556	mg/kg	SW846 6010B	09/04-09/14/01	EJQX81D2
		Dilution Factor: 1		MDL.....: 314		
Sodium	1310	556	mg/kg	SW846 6010B	09/04-09/14/01	EJQX81D5
		Dilution Factor: 1		MDL.....: 10.8		
Prep Batch #...: 1248153						
Mercury	0.42	0.11	mg/kg	SW846 Hg Mod 7470	09/05/01	EJQX81AX
		Dilution Factor: 1		MDL.....: 0.027		
Prep Batch #...: 1268526						
Bismuth	3300	22.2	mg/kg	SW846 6010B	09/25-10/01/01	EJQX82DX
		Dilution Factor: 1		MDL.....: 2.3		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Handwritten:
 ✓
 2/17/02

BECHTEL HANFORD, INC.

Client Sample ID: B12ML4-A

TOTAL Metals

Lot-Sample #....: F1H310250-002

Matrix.....: SOLID

Date Sampled....: 08/26/01

Date Received...: 08/31/01

% Moisture.....: 18

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 1248153						
Mercury	0.13 J	0.12	mg/kg	SW846 Hg Mod 7470	09/05/01	EJXPV1A2
		Dilution Factor: 1		MDL.....: 0.029		
Prep Batch #....: 1254213						
Cadmium	ND U J	0.61	mg/kg	SW846 6010B	09/11-09/20/01	EJXPV1A3
		Dilution Factor: 1		MDL.....: 0.21		
Chromium	46.2	1.2	mg/kg	SW846 6010B	09/11-09/20/01	EJXPV1A4
		Dilution Factor: 1		MDL.....: 0.37		
Copper	23.4	3.1	mg/kg	SW846 6010B	09/11-09/20/01	EJXPV1A5
		Dilution Factor: 1		MDL.....: 0.46		
Lead	285	12.2	mg/kg	SW846 6010B	09/11-09/20/01	EJXPV1A6
		Dilution Factor: 1		MDL.....: 4.0		
Nickel	39.6	4.9	mg/kg	SW846 6010B	09/11-09/20/01	EJXPV1A7
		Dilution Factor: 1		MDL.....: 1.1		
Silver	ND U J	1.2	mg/kg	SW846 6010B	09/11-09/20/01	EJXPV1A8
		Dilution Factor: 1		MDL.....: 1.1		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Handwritten signature
2/17/02

BECHTEL HANFORD, INC.

Client Sample ID: B12ML5-A

TOTAL Metals

Lot-Sample #....: F1H310250-003
Date Sampled....: 08/27/01
* Moisture.....: 15

Date Received...: 08/31/01

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS			
Prep Batch #....: 1248153						
Mercury	0.051 ^B <i>I</i>	0.12	mg/kg	SW846 Hg Mod 7470	09/05/01	EJXP71A2
		Dilution Factor: 1		MDL.....: 0.028		
Prep Batch #....: 1254213						
Cadmium	ND ^U <i>I</i>	0.59	mg/kg	SW846 6010B	09/11-09/20/01	EJXP71A3
		Dilution Factor: 1		MDL.....: 0.20		
Chromium	27.4	1.2	mg/kg	SW846 6010B	09/11-09/20/01	EJXP71A4
		Dilution Factor: 1		MDL.....: 0.35		
Copper	16.6	2.9	mg/kg	SW846 6010B	09/11-09/20/01	EJXP71A5
		Dilution Factor: 1		MDL.....: 0.45		
Lead	76.5	11.7	mg/kg	SW846 6010B	09/11-09/20/01	EJXP71A6
		Dilution Factor: 1		MDL.....: 3.8		
Nickel	13.9	4.7	mg/kg	SW846 6010B	09/11-09/20/01	EJXP71A7
		Dilution Factor: 1		MDL.....: 1.0		
Silver	ND ^U <i>I</i>	1.2	mg/kg	SW846 6010B	09/11-09/20/01	EJXP71A8
		Dilution Factor: 1		MDL.....: 1.1		

NOTE(S):

B Estimated result. Result is less than RL.
Results and reporting limits have been adjusted for dry weight.

Handwritten signature
2/17/02

BECHTEL HANFORD, INC.

Client Sample ID: B12ML6-A

TOTAL Metals

Lot-Sample #...: FLH310250-004
 Date Sampled...: 08/27/01
 ‡ Moisture.....: 11

Date Received...: 08/31/01

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1248153						
Mercury	ND	0.11	mg/kg	SW846 Hg Mod 7470	09/05/01	EJXQC1A2
		Dilution Factor: 1		MDL.....: 0.027		
Prep Batch #...: 1254213						
Cadmium	ND	0.56	mg/kg	SW846 6010B	09/11-09/20/01	EJXQC1A3
		Dilution Factor: 1		MDL.....: 0.19		
Chromium	12.4	1.1	mg/kg	SW846 6010B	09/11-09/20/01	EJXQC1A4
		Dilution Factor: 1		MDL.....: 0.34		
Copper	15.0	2.8	mg/kg	SW846 6010B	09/11-09/20/01	EJXQC1A5
		Dilution Factor: 1		MDL.....: 0.43		
Lead	5.6	11.3	mg/kg	SW846 6010B	09/11-09/20/01	EJXQC1A6
		Dilution Factor: 1		MDL.....: 3.6		
Nickel	10	4.5	mg/kg	SW846 6010B	09/11-09/20/01	EJXQC1A7
		Dilution Factor: 1		MDL.....: 0.97		
Silver	ND	1.1	mg/kg	SW846 6010B	09/11-09/20/01	EJXQC1A8
		Dilution Factor: 1		MDL.....: 1.0		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

Handwritten signature
 2/17/02

BECHTEL HANFORD, INC.

Client Sample ID: B12ML7

TOTAL Metals

Lot-Sample #....: F1H310250-001

Matrix.....: SOLID

Date Sampled....: 08/28/01

Date Received...: 08/31/01

% Moisture.....: 13

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS			
Prep Batch #....: 1248153						
Mercury	ND	0.11	mg/kg	SW846 Hg Mod 7470	09/05/01	EJXPC1AP
		Dilution Factor: 1		MDL.....: 0.028		
Prep Batch #....: 1254213						
Cadmium	ND <i>UJ</i>	0.57	mg/kg	SW846 6010B	09/11-09/20/01	EJXPC1AQ
		Dilution Factor: 1		MDL.....: 0.20		
Chromium	9.3 <i>J</i>	1.1	mg/kg	SW846 6010B	09/11-09/20/01	EJXPC1AR
		Dilution Factor: 1		MDL.....: 0.34		
Copper	11.1 <i>J</i>	2.9	mg/kg	SW846 6010B	09/11-09/20/01	EJXPC1AT
		Dilution Factor: 1		MDL.....: 0.44		
Lead	ND <i>UJ</i>	11.5	mg/kg	SW846 6010B	09/11-09/20/01	EJXPC1AU
		Dilution Factor: 1		MDL.....: 3.7		
Nickel	10.1 <i>J</i>	4.6	mg/kg	SW846 6010B	09/11-09/20/01	EJXPC1AV
		Dilution Factor: 1		MDL.....: 0.99		
Silver	ND <i>UJ</i>	1.1	mg/kg	SW846 6010B	09/11-09/20/01	EJXPC1AW
		Dilution Factor: 1		MDL.....: 1.1		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Handwritten signature
2/17/02

L St. Louis

BECHTEL HANFORD, INC.

Client Sample ID: B12C89-B

TCLP Metals

Lot-Sample #...: F2B160152-001
Date Sampled...: 08/23/01
Leach Date.....: 02/19/02

Date Received...: 02/14/02
Leach Batch #...: P205011

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2051346						
Chromium	23.8 B J	250	ug/L	SW846 6010B	02/20-02/21/02	KT8X21AA
		Dilution Factor: 2.5		MDL.....: 0.33		
Lead	79.6 B J	250	ug/L	SW846 6010B	02/20-02/21/02	KT8X21AC
		Dilution Factor: 2.5		MDL.....: 1.6		

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

pc
3/12/02

UR

BECHTEL HANFORD, INC.

Client Sample ID: B12DC1-A

TCLP Metals

Lot-Sample #: F2B160152-002
Date Sampled: 08/24/01
Leach Date: 02/19/02

Date Received: 02/14/02
Leach Batch #: P205011

Matrix: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #	2051346					
Lead	23.0 B J	250	ug/L	SW846 6010B	02/20-02/21/02	BT9DX1AA
		Dilution Factor: 2.5		MDL: 1.6		

NOTE(S):

- Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311
- B Estimated result. Result is less than RL.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Handwritten signature
3/7/02

BECHTEL HANFORD, INC.

Client Sample ID: B12ML1-4A ^{4-A says 2/27/02}

TCLP Metals

Lot-Sample #...: F2B160152-003
Date Sampled...: 08/26/01
Leach Date.....: 02/19/02

Date Received...: 02/14/02
Leach Batch #...: P205011

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...	2051346					
Lead	46.1-B, J	250	ug/L	SW846 6010B	02/20-02/21/02	ET9D21AA
		Dilution Factor: 2.5		MDL.....: 1.6		

NOTE(S):

- Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311
- B Estimated result. Result is less than RL.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

js
3/12/02

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000022



CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

October 3, 2001

Attention: Joan Kessner

Table with 2 columns: Field Name and Value. Fields include Project Number, SAF, SDG, Number of Samples, Sample Matrix, Data Deliverable, and Date SDG Closed.

II. Introduction

Between September 29 and 31, 2001, six (6) "solid" samples were received by STL--St. Louis for chemical analysis. The samples were received at the St. Louis lab outside temperature criteria. See the COC and CUR forms for details of sample condition and temperature. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see the attached methods summary sheet

Deviation from Request: The metals were done using method 6010B in place of 6010A.

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.
DUP- Matrix Duplicate
MSD- Matrix Spike Duplicate.

000023



Bechtel Hanford Incorporated
October 3, 2001
Project Number: 43018
SDG: W03587
Page 2

STL St. Louis

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 MS recoveries for several metals were outside control limits. The spike data was flagged with an "N" qualifier. LCS recoveries met criteria.

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

There was no recovery of the matrix spike for the Cyanide analysis of sample B12DC1-A. LCS recovery was acceptable. The spike data was flagged with an "N" qualifier.

There was no TOC MS recovery for sample B12DC1-A and the data is flagged with an "N" qualifier. The sample was spiked with 80 ul of a 600 ppm TOC standard. The spike was analyzed by itself with a reading of 640. The sample was weighted and the spike was added on top. When the sample plus the spike was burned, a very low result was given. It is believed that sample matrix was the interference.

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

Reviewed and approved:

Marti Ward
St. Louis Project Manager

000024



CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated
 3350 George Washington Way
 Richland, Washington 99352

February 22, 2002

Attention: Joan Kessner

Project Number	:	43018
SAF	:	B01-058
SDG	:	W03587A
Number of Samples	:	six
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	September 13, 2001

II. Introduction

Between September 29 and 31, 2001, six (6) "solid" samples were received by STL--St. Louis for chemical analysis. The samples were received at the St. Louis lab outside temperature criteria. See the COC and CUR forms for details of sample condition and temperature. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids. On February 14, 2002, the client requested additional analysis. This report contains the results for the additional analysis.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see the attached methods summary sheet

Deviation from Request: The metals were done using method 6010B in place of 6010A.

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.
- DUP- Matrix Duplicate
- MSD- Matrix Spike Duplicate.

000025



Bechtel Hanford Incorporated
February 22, 2002
Project Number: 43018
SDG: W03587A
Page 2

STL St. Louis

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.

TCLP Metals:

The TCLP metals analysis was requested after the TCLP leach holding time had expired.

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 MS/MSD were not run on a sample in this SDG. The data for the "batch" QC is included at the back of the data report. Recoveries were in control.

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

Reviewed and approved:

Marti Ward
St. Louis Project Manager

000026

THIS PAGE INTENTIONALLY LEFT BLANK

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-058-206	Page 1 of 2
Collector Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E	SAF No. B01-058		Air Quality <input type="checkbox"/>	45 Days
Ice Chest No. VIKING SN 08/98 050011	Field Logbook No. EL-1518-1	COA B20TW26948 BT	Method of Shipment Fed EX			
Shipped To Sovern Trent Incorporated ST.Louis		Offsite Property No. RSP 106563	Date 8/24/01		BHM of Lading/Air BHM No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS
 Radiologic. Field Instrument Reading 35MRB
 2 mL Von bottles. Possible α.
 Samples stored in Ref.# Sitetrailer at the 3728
 Shipping Facility on E 24th. Collector not
 available to relinquish samples on 8/28/01
 for shipment.

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1
Volume	60mL	60mL	250mL	60mL	60mL	120mL	250mL	60mL
	Mercury - 1470 - (CV)	Chromium Hex - 7196	See Item (1) in Special Instructions.	VOA - 8200 (TCL)	See Item (2) in Special Instructions.	See Item (3) in Special Instructions.	See Item (4) in Special Instructions.	Activity Scan

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time					
B12DC1	SOIL	8/24/01	0200	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From <u>Gary Thomas/Mary Thomas</u>	Date/Time 8/24/01 0600	Received By/Stored In <u>R. P. Thoren</u>	Date/Time 8/24/01 0600
Relinquished By/Removed From <u>200TW1&2 Site Trailer</u>	Date/Time 8/28/01 0415	Received By/Stored In <u>R. P. Thoren</u>	Date/Time 8/28/01 0415
Relinquished By/Removed From <u>R. P. Thoren</u>	Date/Time 8/29/01 0600	Received By/Stored In <u>FED EX</u>	Date/Time 8/29/01 0600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
 (2) Semi-VOA - 8270A (Add On) (Dibutyl phosphate); TPH-Diesel Range - WPPHED BT 8/24/01
 (3) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)
 (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-156); Gamma Spec - Add on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63, 60; Strontium-89, 90 = Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Lithium

Matrix *
 B=Soil
 SB=Sludges
 SO=Solid
 SL=Sludge
 W=Water
 O=Oil
 A=Air
 DB=Drum Solids
 DL=Drum Liquids
 T=Timon
 WL=Wipe
 L=Liquid
 V=Vegetation
 X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-250		Page 1 of 1							
Collector Thomas G/Watson D.		Company Contact Todd, M.E.		Telephone No. (309) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days							
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>									
Ice Chest No. VIKING SW 08 98 050012		Field Logbook No. EL-1518-1		COA B20TW2A44C B20TW2074C ST		Method of Shipment Fed EX									
Shipped To Severn Trent Incorporated - ST. LOUIS		Offsite Property No. RSR 10705		8/27/01		BIH of Lading/Air Bill No. WAT									
POSSIBLE SAMPLE HAZARDS/REMARKS FIELD RADIOLOGICAL INSTRUMENTS INDICATE 100 CPM @ 20M R/B (0.5M R/B) {ON CONTACT}				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)		1	1	1	1	1	1	1	1	1	1
				Volume		120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
Samples stored in Ref. # TW12 at the 3728 Shipping Facility on 8/27/01. Collector not available to relinquish samples on 8/30/01 for shipment.				See item (1) in Special Instructions.		Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan			
Sample No.		Matrix *		Sample Date		Sample Time									
B12ML5		SOIL		8/27/01		0115		X		X		B12ML2			
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By/Removed From D. WATSON		Date/Time 08/27/01 0645		Received By/Stored In REF. TW12		Date/Time 08/27/01 0645		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VOA - 8270A (Add-On) (Triethyl phosphate), TPH Diesel Range - WPT110 (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium, Isotopic Plutonium (Fission-232); Americium-241; Carbon-14; Manganese-257; Nickel-63; Strontium-90-90 - Total Sr; Technetium-99; Total Uranium-Titanium - LEL, Isotopic Uranium				B=Soil SB=Soilmat SO=Soil SL=Sludge W=Water O=Oil A=Air DL=Drum Lid/Lid DL=Drum Liquid T=Time WL=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From R. T. WATSON		Date/Time 8.30.01		Received By/Stored In R. T. WATSON		Date/Time 8.30.01									
Relinquished By/Removed From R. T. WATSON		Date/Time 8.30.01		Received By/Stored In FED EX		Date/Time									
Relinquished By/Removed From FED EX		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
LABORATORY SECTION		Received By [Signature]		Title				Date/Time 08-31-01/0920							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time							

BH-EE-011 (10/99)

3587

Bechtel Hanford Inc.			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-058-251		Page 1 of 1		
Collector Thomas G./Watson D.			Company Contact Todd, M.E.		Telephone No. (309) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround	
Project Designation 200-TW-1 & 2 - Soil Sampling			Sampling Location B-7A/200 B		SAF No. B01-058		Air Quality <input type="checkbox"/>		45 Days			
Ice Chest No. VIKING S/N 08/980500			Field Logbook No. 7EL-1518-1		COA B20TW2A44C B20TW2074C HT		Method of Shipment Fed EX					
Shipped To Severn Trent Incorporated - ST. LOUIS			Offsite Property No. RSP 107053 8/27/01			Bill of Lading/Air Bill No. WA						
POSSIBLE SAMPLE HAZARDS/REMARKS FIELD RADIOLOGICAL INSTRUMENTS INDICATE 200CPM } ON CONTACT TMRB } (LA5ARY)				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
				Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)	1	1	1	1	1	1	1	1
				Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL
Samples stored in Ref. # 1B at the 3728 Shipping Facility on 8/27/01. Collector not available to relinquish samples on 8/30/01 for shipment. RT 8:30 01				See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7146	See item (2) in Special Instructions.	VDA - 8760A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan	
SAMPLE ANALYSIS												
Sample No.	Matrix *	Sample Date	Sample Time									TIE TO
B12ML6	SOIL	8/27/01	0430	X	X		X					B12MLK3
CHAIN OF POSSESSION												Matrix *
Relinquished By/Removed From				Sign/Print Names				SPECIAL INSTRUCTIONS				
Date/Time		Date/Time		Date/Time		Date/Time		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrile, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VOC - 8270A (Add-On) (1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,1,1,2,2-pentachloroethane, 1,1,1,2,2,2-hexachloroethane) (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Uranium Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotope Uranium				B-Soil SB-Soil SO-Solid SL-Solid W-Water O-Oil A-Air D-Drum Solid DL-Drum Liquid T-Tissue W-Wipe L-Liquid V-Vegetable X-Other
8/10/01 0745		REF-1B		08/27/01 0745								
8/30/01 0430		R. Thoren		8/30/01 0430								
8/30/01 0500		R. Thoren		8/30/01 0500								
8/30/01 0500		FED EX		8/30/01 0500								
Date/Time		Date/Time		Date/Time		Date/Time						
Date/Time		Date/Time		Date/Time		Date/Time						
Date/Time		Date/Time		Date/Time		Date/Time						
Date/Time		Date/Time		Date/Time		Date/Time						
LABORATORY SECTION	Received By	Title										Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By										Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-058-252 Page 1 of 1	
Collector Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (309) 372-9631	Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location B-7A/200 E	Field Logbook No. EL-1518-1	COA B20TW2444 B20TW2674C JT	SAF No. B01-058	Air Quality <input type="checkbox"/>	
Ice Chest No. ERC-01-026	Shipped To Sewern Trent Incorporated - ST. LOUIS	Offsite Property No. A010288 8/28/01	Method of Shipment Fed EX			
POSSIBLE SAMPLE HAZARDS/REMARKS Radiological. Field Instruments Reading background Special Handling and/or Storage			Bill of Lading/Air Bill No. 42357954 6965			

Preservation	Cool 4C	None	None					
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1
Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL

SAMPLE ANALYSIS	See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8160A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Beta

Sample No.	Matrix *	Sample Date	Sample Time					
B12ML7	SOIL	08/28/01	0100	X	X		X	
								B12MK4

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From GWS Thomas G. Watson	Date/Time 8/28/01	Received By/Stored In RT JB JTS	Date/Time 8/28/01
Relinquished By/Removed From R. J. Thornton	Date/Time 8:30.01	Received By/Stored In R. J. Thornton	Date/Time 8:30.01
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Arsenic - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VOA - 8120A (Add-On) (Fifty-ethyl phosphate); PFH-Direct Range - WEPH-D

(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Barium-135); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium - Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - HT; Isotopic Uranium

Samples stored in Ref. # 1B at the 3728 Shipping Facility on 8/28/01. Collector not available to relinquish samples on 8/30/01 for shipment.

RT 8:30.01

LABORATORY SECTION	Received By JTS	Title	Date/Time 08-31-01 / 0920
FINAL SAMPLE DISPOSITION	Disposed Method	Disposed By	Date/Time



Lot No.: FIH31025C

Condition Upon Receipt Form
St. Louis Laboratory

Client: Hanford

Date: 083101 Time: 0920

Quote No: 43018

Initiated by: [Signature]

Shipper/No: 4476546152 Fed Ex

COC/RFA Numbers: B01-058-249

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation): -250
-251

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in undamaged condition.	5. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample volume sufficient for analysis.
2. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received within $4^{\circ}\text{C} \pm 2^{\circ}\text{C}^*$ Record temperature: <u>18</u>	6. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody.
3. <input type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/> N/A	Sample received with proper pH**.	7. <input checked="" type="radio"/> Y <input type="radio"/> N	Chain of Custody matches sample IDs on containers.
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers.	8. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on cooler.
		9. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and solids.

Notes:

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 083101

Project Management Review: [Signature] Date: 9.4.01

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM



Lot No.: FIH290206
W03587

Condition Upon Receipt Form
St. Louis Laboratory

Client: Flour Hanford
Quote No: 43018
Shipper/No: FedX 4476 546126

Date: 8.29.01 Time: 0850
Initiated by: [Signature]
COC/RFA Numbers: BDI-058-206, 166, 238

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

- | | | | |
|---|---|---|---|
| 1. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received in undamaged condition. | 5. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample volume sufficient for analysis. |
| 2. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received within $4C \pm 2C^*$
Record temperature: <u>17</u> | 6. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received with Chain of Custody. |
| 3. <input type="radio"/> Y <input type="radio"/> N | Sample received with proper pH**. <u>Soil N/A</u> | 7. <input checked="" type="radio"/> Y <input type="radio"/> N | Chain of Custody matches sample IDs on containers. |
| 4. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received in proper containers. | 8. <input checked="" type="radio"/> Y <input type="radio"/> N | Custody seal received intact and tamper evident on cooler. |
| | | 9. <input type="radio"/> Y <input checked="" type="radio"/> N | Custody seal received intact and tamper evident on bottles. |

* Temperature Variance Does Not Affect the Following Analytes: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes: Blue ice melted - not enough to cool samples.
All jars contaminated on outside with radioactive soil granules. We used Contrad solution to clean the outside of the jars. All jars were swiped as well as the inside of the cooler. After swiping found no contamination.
Also, shipping container is expired and should not be used. Mfg. date is 1998

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 8.29.01

Project Management Review: [Signature] Date: 8.29.01

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM

Appendix 5

Data Validation Supporting Documentation

000036

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200 TW 112	DATA PACKAGE: W03587				
VALIDATOR: JLI	LAB: STL			DATE: 2/10/02	
CASE:			SDG: W03587		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide	TCLP 60103	
SAMPLES/MATRIX					
B12C89-B		B12DC1-A		B12ML6-A B12ML7	
B12ML5-A		B12ML4			

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: _____

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? Yes No N/A
 Initial calibrations acceptable? Yes No N/A
 ICP interference checks acceptable? Yes No N/A
 ICV and CCV checks performed on all instruments? Yes No N/A
 ICV and CCV checks acceptable? Yes No N/A
 Standards traceable? Yes No N/A
 Standards expired? Yes No N/A
 Calculation check acceptable? Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E)..... Yes No N/A
ICB and CCB results acceptable? (Levels D, E)..... Yes No N/A
Laboratory blanks analyzed?..... Yes No N/A
Laboratory blank results acceptable?..... Yes No N/A
Field blanks analyzed? (Levels C, D, E)..... Yes No N/A
Field blank results acceptable? (Levels C, D, E)..... Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Comments: TCLP lead T all blank cont

4. ACCURACY (Levels C, D, and E)

Yes
MS/MSD samples analyzed?..... Yes No N/A
MS/MSD results acceptable?..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A
MS/MSD standards expired? (Levels D, E)..... Yes No N/A
LCS/BSS samples analyzed?..... Yes No N/A
LCS/BSS results acceptable?..... Yes No N/A
Standards traceable? (Levels D, E)..... Yes No N/A
Standards expired? (Levels D, E)..... Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Performance audit sample(s) analyzed?..... Yes No N/A
Performance audit sample results acceptable?..... Yes No N/A
Comments: NO MS/MSD - T (all but DCF) ←
C89

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

- Duplicate RPD values acceptable? Yes No N/A
- Duplicate results acceptable? Yes No N/A
- MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
- MS/MSD standards expired? (Levels D, E) Yes No N/A
- Field duplicate RPD values acceptable? Yes No N/A
- Field split RPD values acceptable? Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: Chromium 5190 - Jany
 Manganese 20020 } DCI No MS/MSD all levels
 Bismuth 200 } U-OK DCI - J. Alford
 No MS/MSD 6, 7 4-5-00

6. ICP QUALITY CONTROL (Levels D and E)

- ICP serial dilution samples analyzed? Yes No N/A
- ICP serial dilution %D values acceptable? Yes No N/A
- ICP post digestion spike required? Yes No N/A
- ICP post digestion spike values acceptable? Yes No N/A
- Standards traceable? Yes No N/A
- Standards expired? Yes No N/A
- Transcription/calculation errors? Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? Yes No N/A
Duplicate injection %RSD values acceptable? Yes No N/A
Analytical spikes performed as required? Yes No N/A
Analytical spike recoveries acceptable? Yes No N/A
Standards traceable? Yes No N/A
Standards expired? Yes No N/A
MSA performed as required? Yes No N/A
MSA results acceptable? Yes No N/A
Transcription/calculation errors? Yes No N/A

Comments: _____

8. HOLDING TIMES (all levels)

Samples properly preserved? Yes No N/A
Sample holding times acceptable? Yes No N/A

Comments: _____
all but ML7 extra 17° or 18° F
all but ML7

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. **RESULT QUANTITATION AND DETECTION LIMITS (all levels)**
- Results reported for all requested analyses? Yes No N/A
- Results supported in the raw data? (Levels D, E) Yes No N/A
- Samples properly prepared? (Levels D, E) Yes No N/A
- Detection limits meet RDL? Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

000042

METHOD BLANK REPORT

TOTAL Metals

Client Lot #....: F1H290206

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F1I040000-187 Prep Batch #....: 1247187						
Aluminum	3.2 B	20.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AC
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AE
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AV
		Dilution Factor: 1				
Calcium	127 B	500	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AD
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AF
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AW
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AG
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AX
		Dilution Factor: 1				
Iron	14.2	10.0	mg/kg	SW846 6010B	09/04-09/14/01	EJ09D1AH
		Dilution Factor: 1				
Lead	0.21 B	0.30	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AN
		Dilution Factor: 1				
Lead	ND	10.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AO
		Dilution Factor: 1				
Magnesium	ND	500	mg/kg	SW846 6010B	09/04-09/14/01	EJ09D1AJ
		Dilution Factor: 1				
Manganese	0.15 B	1.5	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AK
		Dilution Factor: 1				
Molybdenum	ND	4.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AL
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AM
		Dilution Factor: 1				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F1H290206

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Nickel	ND	4.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1A1
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	09/04-09/14/01	EJ09D1AA
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	09/04-09/14/01	EJ09D1A2
		Dilution Factor: 1				
Vanadium	ND	5.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AP
		Dilution Factor: 1				
Zinc	5.2	2.0	mg/kg	SW846 6010B	09/04-09/07/01	EJ09D1AQ
		Dilution Factor: 1				
Potassium	ND	500	mg/kg	SW846 6010B	09/04-09/14/01	EJ09D1AT
		Dilution Factor: 1				
Sodium	ND	500	mg/kg	SW846 6010B	09/04-09/14/01	EJ09D1AU
		Dilution Factor: 1				

MB Lot-Sample #: F1I050000-153 Prep Batch #...: 1248153

Mercury	ND	0.10	mg/kg	SW846 Hg Mod 7470	09/05/01	EJ2GF1AA
		Dilution Factor: 1				

MB Lot-Sample #: F1I250000-526 Prep Batch #...: 1268526

Bismuth	ND	20.0	mg/kg	SW846 6010B	09/25-10/01/01	EK3NA1AA
		Dilution Factor: 1				

NOTE(S):

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

B Estimated result. Result is less than RL.

000044

STL St. Louis

METHOD BLANK REPORT

TOTAL Metals

Client Lot #: F1H310250

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F1I050000-153 Prep Batch #: 1248153						
Mercury	ND	0.10	mg/kg	SW846 Hg Mod 7470	09/05/01	EJ2GF1AA
		Dilution Factor: 1				
MB Lot-Sample #: F1I110000-213 Prep Batch #: 1254213						
Cadmium	ND	0.50	mg/kg	SW846 6010B	09/11-09/20/01	EKAR31AA
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	09/11-09/20/01	EKAR31AC
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	09/11-09/20/01	EKAR31AD
		Dilution Factor: 1				
Lead	ND	10.0	mg/kg	SW846 6010B	09/11-09/20/01	EKAR31AE
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	09/11-09/20/01	EKAR31AF
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	09/11-09/20/01	EKAR31AG
		Dilution Factor: 1				

NOTE(S):

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

000045

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1H290206
Date Sampled...: 08/24/01

Date Received...: 08/29/01

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F1H290206-001 Prep Batch #...: 1247187									
Aluminum									
	9630	222	11100 N	mg/kg	651		SW846 6010B	09/04-09/07/01	EJQX81CN
	9630	222	11400 N	mg/kg	784	2.6	SW846 6010B	09/04-09/07/01	EJQX81CP
	Dilution Factor: 1								
Cadmium									
	ND	5.56	3.55 N	mg/kg	64		SW846 6010B	09/04-09/07/01	EJQX81CV
	ND	5.56	3.52 N	mg/kg	63	0.88	SW846 6010B	09/04-09/07/01	EJQX81CW
	Dilution Factor: 1								
Calcium									
	11900	5560	17000	mg/kg	93		SW846 6010B	09/04-09/07/01	EJQX81CR
	11900	5560	15000 N	mg/kg	57	12	SW846 6010B	09/04-09/07/01	EJQX81CT
	Dilution Factor: 1								
Chromium									
	73.2	22.2	158 N	mg/kg	383		SW846 6010B	09/04-09/07/01	EJQX81CO
	73.2	22.2	93.6 *	mg/kg	92	51	SW846 6010B	09/04-09/07/01	EJQX81C1
	Dilution Factor: 1								
Copper									
	20.5	27.8	45.4	mg/kg	89		SW846 6010B	09/04-09/07/01	EJQX81C3
	20.5	27.8	49.5	mg/kg	104	8.8	SW846 6010B	09/04-09/07/01	EJQX81C4
	Dilution Factor: 1								
Iron									
	34900	111	34500 N	mg/kg	0.0		SW846 6010B	09/04-09/14/01	EJQX81C6
	34900	111	34000 N	mg/kg	0.0	0.0	SW846 6010B	09/04-09/14/01	EJQX81C7
	Dilution Factor: 1								
Lead									
	308	55.6	307 N	mg/kg	0.0		SW846 6010B	09/04-09/07/01	EJQX81DN
	308	55.6	273 N	mg/kg	0.0	0.0	SW846 6010B	09/04-09/07/01	EJQX81DP
	Dilution Factor: 1								
Magnesium									
	6460	5560	16300 N	mg/kg	178		SW846 6010B	09/04-09/14/01	EJQX81C9
	6460	5560	15500 N	mg/kg	162	5.5	SW846 6010B	09/04-09/14/01	EJQX81DA
	Dilution Factor: 1								

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1H290206

Matrix.....: SOLID

Date Sampled...: 08/24/01

Date Received...: 08/29/01

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Manganese									
	1650	55.6	1750 N	mg/kg	187		SW846 6010B	09/04-09/07/01	EJQX81DD
	1650	55.6	1420 N,*	mg/kg	0.0	200	SW846 6010B	09/04-09/07/01	EJQX81DE
	Dilution Factor: 1								
Molybdenum									
	ND	111	105	mg/kg	95		SW846 6010B	09/04-09/07/01	EJQX81DG
	ND	111	103	mg/kg	92	2.6	SW846 6010B	09/04-09/07/01	EJQX81DH
	Dilution Factor: 1								
Nickel									
	66.6	55.6	140 N	mg/kg	132		SW846 6010B	09/04-09/07/01	EJQX81DK
	66.6	55.6	113 *	mg/kg	84	21	SW846 6010B	09/04-09/07/01	EJQX81DL
	Dilution Factor: 1								
Silver									
	1.9	5.56	8.19	mg/kg	114		SW846 6010B	09/04-09/14/01	EJQX81CK
	1.9	5.56	7.56	mg/kg	103	8.0	SW846 6010B	09/04-09/14/01	EJQX81CL
	Dilution Factor: 1								
Vanadium									
	88.4	55.6	147	mg/kg	105		SW846 6010B	09/04-09/07/01	EJQX81DR
	88.4	55.6	145	mg/kg	102	0.93	SW846 6010B	09/04-09/07/01	EJQX81DT
	Dilution Factor: 1								
Zinc									
	127	55.6	175	mg/kg	87		SW846 6010B	09/04-09/07/01	EJQX81DV
	127	55.6	153 N	mg/kg	48	13	SW846 6010B	09/04-09/07/01	EJQX81DW
	Dilution Factor: 1								
Potassium									
	1900	5560	7300	mg/kg	97		SW846 6010B	09/04-09/14/01	EJQX81D3
	1900	5560	6890	mg/kg	90	5.8	SW846 6010B	09/04-09/14/01	EJQX81D4
	Dilution Factor: 1								
Sodium									
	1310	5560	7000	mg/kg	102		SW846 6010B	09/04-09/14/01	EJQX81D6
	1310	5560	7190	mg/kg	106	2.8	SW846 6010B	09/04-09/14/01	EJQX81D7
	Dilution Factor: 1								

MS Lot-Sample #: F1H290206-001 Prep Batch #...: 1248153

(Continued on next page)

000047

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1H290206
 Date Sampled...: 08/24/01

Date Received...: 08/29/01

Matrix.....: SOLID

PARAMETER	SAMPLE SPIKE MEASURED			UNITS	PERCENT		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
	AMOUNT	AMT	AMOUNT		RECVRY	RPD			
Mercury	0.42	0.556	1.08	mg/kg	119		SW846 Hg Mod	09/05/01	EJQX81A0
	0.42	0.556	0.962	mg/kg	97	12	SW846 Hg Mod	09/05/01	EJQX81A1

Dilution Factor: 1

MS Lot-Sample #: F1H290206-001 Prep Batch #...: 1268526

Bismuth	3300	222	3680 N	mg/kg	168		SW846 6010B	09/25-10/01/01	EJQX81EQ
	3300	222	3180 N,*	mg/kg	0.0	200	SW846 6010B	09/25-10/01/01	EJQX81ER

Dilution Factor: 1

NOTE(S):

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

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

St. Louis

METHOD BLANK REPORT

TCLP Metals

Client Lot #....: F2B160152

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: F2B190000-315						
Leach Date.....: 02/19/02						
Chromium	ND	250	ug/L	SW846 6010B	02/20-02/21/02	EVA361AF
		Dilution Factor: 2.5				
Lead	27.0 B	250	ug/L	SW846 6010B	02/20-02/21/02	EVA361AG
		Dilution Factor: 2.5				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.
B Estimated result. Result is less than RL.

000049

St. Louis

LABORATORY CONTROL SAMPLE DATA REPORT

TCLP Metals

Client Lot #....: F2B160152

Matrix.....: SOLID

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
LCS Lot-Sample#: F2B200000-346 Prep Batch #....: 2051346								
Chromium	2500	2430	ug/L	97	SW846 6010B	02/20-02/21/02	EVDHT1AE	
			Dilution Factor: 2.5					
Lead	2500	2540	ug/L	102	SW846 6010B	02/20-02/21/02	EVDHT1AF	
			Dilution Factor: 2.5					

NOTE(S):

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

000030

St. LOUIS

MATRIX SPIKE SAMPLE DATA REPORT

TCLP Metals

Client Lot #....: F2B160152
Date Sampled....: 02/14/02

Date Received...: 02/15/02

Matrix.....: SOLID

<u>PARAMETER</u>	<u>AMOUNT</u>	<u>SAMPLE SPIKE AMT</u>	<u>MEASRD AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>RPD</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MS Lot-Sample #:		F2B180140-001		Prep Batch #....:		2051346			
Leach Date.....:		02/19/02		Leach Batch #...:		P205011			
Chromium									
	1.3	12500	11200	ug/L	90		SW846 6010B	02/20-02/21/02	ET9NA1AV
	1.3	12500	11400	ug/L	91	1.7	SW846 6010B	02/20-02/21/02	ET9NA1AW
Dilution Factor: 2.5									
Lead									
	29.9	12500	11900	ug/L	95		SW846 6010B	02/20-02/21/02	ET9NA1AX
	29.9	12500	12100	ug/L	97	1.8	SW846 6010B	02/20-02/21/02	ET9NA1A0
Dilution Factor: 2.5									

NOTE(S):

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

000051

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1H310250
Date Sampled...: 08/28/01

Date Received...: 08/31/01

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F1H310250-001 Prep Batch #...: 1254213									
Cadmium									
	ND	5.75	4.71	mg/kg	82		SW846 6010B	09/11-09/20/01	EJXPC1A3
	ND	5.75	4.61	mg/kg	80	2.2	SW846 6010B	09/11-09/20/01	EJXPC1A4
	Dilution Factor: 1								
Chromium									
	9.3	23.0	30.6	mg/kg	93		SW846 6010B	09/11-09/20/01	EJXPC1A1
	9.3	23.0	36.4	mg/kg	118	18	SW846 6010B	09/11-09/20/01	EJXPC1A2
	Dilution Factor: 1								
Copper									
	11.1	28.7	39.5	mg/kg	99		SW846 6010B	09/11-09/20/01	EJXPC1A3
	11.1	28.7	43.2	mg/kg	111	8.9	SW846 6010B	09/11-09/20/01	EJXPC1A4
	Dilution Factor: 1								
Lead									
	ND	57.5	55.2	mg/kg	96		SW846 6010B	09/11-09/20/01	EJXPC1A5
	ND	57.5	54.2	mg/kg	94	1.6	SW846 6010B	09/11-09/20/01	EJXPC1A6
	Dilution Factor: 1								
Nickel									
	10.1	57.5	61.0	mg/kg	89		SW846 6010B	09/11-09/20/01	EJXPC1A7
	10.1	57.5	77.7 *	mg/kg	118	24	SW846 6010B	09/11-09/20/01	EJXPC1A8
	Dilution Factor: 1								
Silver									
	ND	5.75	5.00	mg/kg	87		SW846 6010B	09/11-09/20/01	EJXPC1A9
	ND	5.75	4.99	mg/kg	87	0.13	SW846 6010B	09/11-09/20/01	EJXPC1CA
	Dilution Factor: 1								

NOTE (S):

- Calculations are performed before rounding to avoid round-off errors in calculated results.
- Results and reporting limits have been adjusted for dry weight.
- * Relative percent difference (RPD) is outside stated control limits.

Date: 12 March 2002
 To: Bechtel Hanford Inc. (technical representative)
 From: TechLaw, Inc.
 Project: 200-TW-1&2 - Soil Sampling
 Subject: Radiochemistry/Chromium VI - Data Package No. W03587-ST (SDG No. W03587)

INTRODUCTION

This memo presents the results of data validation on Data Package No. W03587-ST prepared by Severn Trent Services (ST). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B12C89-B	8/23/01	Soil	C	See note 1
B12DC1-A	8/24/01	Soil	C	See note 1
B12ML5-A	8/27/01	Soil	C	Analysis cancelled
B12ML6-A	8/27/01	Soil	C	See note 1
B12ML7	8/28/01	Soil	C	See note 1 & 2

1-Hexavalent chromium.
 2-Tritium; carbon-14; nickel-63; total strontium; americium-241; technetium-99; isotopic uranium, plutonium and thorium; neptunium-237; gamma spectroscopy; total uranium.

Data validation was conducted in accordance with the BHI validation statement of work and the *200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan*, DOE/RL-2000-38, Rev. 0, February 2001. Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months and hexavalent chromium is 30 days.

All holding times were acceptable.

- **Method Blanks**

Radiochemistry

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All radiochemistry blank results were acceptable.

Chromium VI (Preparation Blanks)

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the target required quantitation limit (TRQL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the IDL and less than or equal to the TRQL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

000002

All chromium VI blank results were acceptable.

- **Accuracy**

Radiochemistry

Accuracy is evaluated from laboratory control sample (LCS) or samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30%, tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

Due to an LCS and matrix spike recovery of 69%, the technetium-99 result in sample B12ML7 was qualified as an estimate and flagged "J".

Due to the lack of a matrix spike analysis, all tritium and carbon-14 results in sample B12ML7 were qualified as estimates and flagged 'J'.

All other accuracy results were acceptable.

Chromium VI

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must fall within the range of 70-130%. Samples with a spike recovery of less than 25% and a sample result below the instrument detection limit (IDL) are rejected and flagged "UR". Samples with a spike recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to an LCS recovery of 145%, the chromium VI result in samples B12DC1-A and B12C89-B were qualified as estimates and flagged "J".

Due to the lack of a matrix spike analysis, the chromium VI results in samples B12C89-B and B12DC1-A were qualified as estimates and flagged "J".

All other chromium VI blank results were acceptable.

- **Laboratory Duplicates**

Radiochemistry

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the TRQL and the RPD is less than 35%, no qualification is required. If either activity (concentration) is less than five times the TRQL, the RPD control limit is less than or equal to two times the TRQL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All radiochemistry duplicate results were acceptable.

Chromium VI

Laboratory duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Results must be within relative percent difference (RPD) limits of plus or minus 35% for soil samples. If RPD values are out of specification and the sample concentration is greater than five times the TRQL, all associated sample results are qualified as estimated and flagged "J". If RPD values are plus or minus two times the TRQL and the sample concentration is less than five times the TRQL, all associated sample results are qualified as estimated and flagged "J/UJ". The performance criteria for laboratory duplicates are an RPD less than 35% for positive sample results greater than five times the TRQL or plus or minus 2 times the TRQL for positive sample results less than five times the TRQL. Sample results outside the criteria are qualified as estimates and flagged "J/UJ".

All chromium VI blank results were acceptable.

- **Detection Levels**

Reported analytical detection levels are compared against 200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan, DOE/RL-2000-38, Rev. 0, February 2001 TRQLs to ensure that laboratory detection levels meet the required criteria. All reported laboratory MDAs were at or below the analyte-specific TRQL.

- **Completeness**

Data package No. W03587-ST was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to an LCS recovery of 145%, the chromium VI result in samples B12DC1-A and B12C89-B were qualified as estimates and flagged "J". Due to an LCS and matrix spike recovery of 69%, the technetium-99 result in sample B12ML7 was qualified as an estimate and flagged "J". Due to the lack of a matrix spike analysis, all tritium and carbon-14 results in sample B12ML7 were qualified as estimates and flagged 'J'. Due to the lack of a matrix spike analysis, the chromium VI results in samples B12C89-B and B12DC1-A were qualified as estimates and flagged "J". Data flagged 'J' is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-2000-38, Rev. 0, *200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan*, February 2001.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

000005

Appendix 2
Summary of Data Qualification

000007

DATA QUALIFICATION SUMMARY

SDG: W03587	REVIEWER: TLI	DATE: 3/12/02	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
ChromiumVI	J	B12DC1-A B12C89-B	LCS recovery
Technetium-99	J	B12ML7	LCS & MS recovery
Tritium Carbon-14	J	B12ML7	No matrix spike analysis
Chromium VI	J	B12DC1-A B12C89-B	No matrix spike analysis

0000C8

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: BECHTEL-HANFORD															
Laboratory: Severn Trent Services															
Case		SDG: W03587													
Sample Number		B12C89-B		B12DC1-A		B12ML6-A		B12ML7							
Sample Date		08/23/01		08/24/01		08/27/01		08/28/01							
Radiochemistry	CRDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Tritium	400	NA		NA		NA		1.68	UJ						
Carbon-14	50	NA		NA		NA		-0.0247	UJ						
Nickel-63	30	NA		NA		NA		-0.129	U						
Total Strontium	1	NA		NA		NA		39.5							
Americium-241	1	NA		NA		NA		0.0764							
Techneium-99	15	NA		NA		NA		-0.441	UJ						
Thorium-228		NA		NA		NA		0.693							
Thorium-230		NA		NA		NA		0.516							
Thorium-232	1	NA		NA		NA		0.562							
Total Uranium (ug/g)	1	NA		NA		NA		2.02							
Uranium-234	1	NA		NA		NA		0.884							
Uranium-235	1	NA		NA		NA		0.0698							
Uranium-238	1	NA		NA		NA		0.789							
Neptunium-237	1	NA		NA		NA		0	U						
Plutonium-238	1	NA		NA		NA		-0.000403	U						
Plutonium-239/240	1	NA		NA		NA		0.451							
Cobalt 60	0.05	NA		NA		NA		0.0111	U						
Cesium 137	0.1	NA		NA		NA		5.06							
Radium-226	0.1	NA		NA		NA		0.575							
Radium-228	0.2	NA		NA		NA		0.971							
Europium 152	0.1	NA		NA		NA		0.0224	U						
Europium 154	0.1	NA		NA		NA		0.0177	U						
Europium 155	0.1	NA		NA		NA		-0.0425	U						
Hexavalent Chromium*	0.5	15.1	J	17.8	J	0.08	U	0.08	U						

NA = Not analyzed

* - units mg/kg

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

FORM I

Date: 02-Jan-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03587

Collection Date: 8/23/01 1:30:00 PM

Lot-Sample No.: J11100167-

Report No.: 18500

Received Date: 9/10/01 12:30:00 PM

Client Sample ID: B12C89-B *Dayes 1/7/02*

COC No.: B01-058-206

Matrix: SOIL

Ordered by Client Sample ID, Batch N

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1267165	Work Order:			Report DB ID: 9EJ95M20								
HEXCHROME	1.51E+01	I		0.0E+00	8.00E-02	mg/kg	N/A 3.00E-02	(188.7) N/A	9/27/01		3.0 G	EPA7196

Number of Results: 1

Comments:

000013

for
2/14/02

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

STL Richland

rptSTLRchSample V3.81 A97

FORM I

Date: 02-Jan-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03587

Collection Date: 8/24/01 2:00:00 PM

Lot-Sample No.: J11100167-

Report No.: 18500

Received Date: 9/10/01 12:30:00 PM

Client Sample ID: B12DC1-A *Payes*
1/7/02

COC No.: B01-058-206

Matrix: SOIL

Ordered by Client Sample ID, Batch N

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1267165	Work Order:				Report DB ID: 9EJ95K20							
HEXCHROME	1.78E+01	J		0.0E+00	8.00E-02	mg/kg	N/A	(222.)	9/27/01		2.8	EPA7196
							3.00E-02	N/A			G	

Number of Results: 1

Comments:

000000

R
2/16/02

~~0014~~

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

FORM I

Date: 02-Jan-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03587

Collection Date: 8/27/01 4:30:00 AM

Lot-Sample No.: J1H300271-

Report No.: 18500

Received Date: 8/30/01 12:10:00 PM

Client Sample ID: B12ML6-A *Daynes 1/7/02*

COC No.: B01-058-251

Matrix: SOIL

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1247459	Work Order: EJT9N1AA		Report DB ID: 9EJT9N10									
HEXCHROME	8.00E-02	U		0.0E+00	8.00E-02	mg/kg	N/A	(1.)	9/9/01		2.835	EPA7196
							3.00E-02	N/A			G	

Number of Results: 1

Comments:

0000013

R
2/14/02

0015

FORM I

Date: 02-Jan-02

SAMPLE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J1H300187-
 Client Sample ID: B12ML7

SDG: W03587
 Report No.: 18500
 COC No.: B01-058-252

Collection Date: 8/28/01
 Received Date: 8/30/01 8:55:00 AM
 Matrix: SOIL

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Alliquot Size	Analy Method, Primary Detector
Batch: 1242487	Work Order: EJTF11AA		Report DB ID: 9EJTF110									
HEXCHROME	8.00E-02	U		0.0E+00	8.00E-02	mg/kg	N/A	(1.)	9/9/01		2.59	EPA7196
							3.00E-02	N/A			G	
Batch: 1263498	Work Order: EJTF11AF		Report DB ID: 9EJTF110									
PU-238	-4.03E-04	U	8.1E-04	8.1E-04	2.03E-02	pCi/g	61.19%	-0.02	12/22/01 12:01 p		2.02	RICHRC5010
							3.31E-03	1.00E+00			G	ALP17
PU239/40	4.51E-01		9.5E-02	1.2E-01	2.29E-02	pCi/g	61.19%	(19.7)	12/22/01 12:01 p		2.02	RICHRC5010
							4.67E-03	1.00E+00	(7.5)		G	ALP17
Batch: 1263500	Work Order: EJTF11AG		Report DB ID: 9EJTF110									
AM-241	7.64E-02		3.7E-02	4.0E-02	2.07E-02	pCi/g	84.68%	(3.7)	12/27/01 12:55 p		2.02	RICHRC5080
							4.22E-03	1.00E+00	(3.8)		G	ALP17
Batch: 1263506	Work Order: EJTF11AC		Report DB ID: 9EJTF110									
U-234	8.84E-01		2.1E-01	2.7E-01	4.81E-02	pCi/g	49.51%	(18.4)	12/19/01 08:38 p		1.01	RICHRC5079
							7.87E-03	1.00E+00	(6.5)		G	ALP9
U-235	6.98E-02		5.9E-02	6.0E-02	5.46E-02	pCi/g	49.51%	(1.3)	12/19/01 08:38 p		1.01	RICHRC5079
							1.11E-02	1.00E+00	(2.3)		G	ALP9
U-238	7.89E-01		1.9E-01	2.5E-01	3.24E-02	pCi/g	49.51%	(24.4)	12/19/01 08:38 p		1.01	RICHRC5079
							1.00E+00	(6.3)			G	ALP9
Ratio U-234/238 = 1.1												
Batch: 1263508	Work Order: EJTF11AK		Report DB ID: 9EJTF110									
TOTAL-URANIUM	2.02E+00		0.0E+00	3.3E-01	9.78E-06	ug/g		(206451.6)	12/11/01 05:29 p	1.0	1.0	RICHRC5015
							3.46E-06	1.00E+00	(12.4)	ML	ML	LIP3

Handwritten signature and date: 2/1/02

FORM I

Date: 02-Jan-02

SAMPLE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J1H300187-
 Client Sample ID: B12ML7

SDG: W03587
 Report No.: 18500
 COC No.: B01-058-252

Collection Date: 8/28/01
 Received Date: 8/30/01 8:55:00 AM
 Matrix: SOIL

Ordered by Client Sample ID, Batch N

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1263510 Work Order: EJTF11AJ Report DB ID: 9EJTF110												
TH-228	6.93E-01		1.4E-01	1.7E-01	6.18E-02	pCi/g	82.20%	(11.2)	12/19/01 10:21 a		2.02	RICHRC5011
							2.12E-02	1.00E+00	(8.)		G	ALP117
TH-230	5.16E-01		1.1E-01	1.4E-01	2.92E-02	pCi/g	82.20%	(17.7)	12/19/01 10:21 a		2.02	RICHRC5011
							5.94E-03	1.00E+00	(7.6)		G	ALP117
TH-232	5.62E-01		1.2E-01	1.4E-01	1.73E-02	pCi/g	82.20%	(32.5)	12/19/01 10:21 a		2.02	RICHRC5011
							1.00E+00	(7.8)			G	ALP117
Batch: 1263511 Work Order: EJTF11AP Report DB ID: 9EJTF110												
C-14	-2.47E-02	U	3.2E-01	5.0E-01	7.84E-01	pCi/g	100.00%	-0.03	11/7/01 10:18 p		2.017	C14_LSC
							3.75E-01	5.00E+01	-0.1		G	LSC3
Batch: 1263512 Work Order: EJTF11AE Report DB ID: 9EJTF110												
NI-63	-1.29E-01	U	2.8E+00	4.4E+00	6.87E+00	pCi/g	84.65%	-0.02	12/11/01 07:31 p		0.25	NI63LSC
							3.33E+00	3.00E+01	-0.06		G	LSC6
Batch: 1263515 Work Order: EJTF11AL Report DB ID: 9EJTF110												
TC-99	-4.41E-01	U	3.0E-01	5.0E-01	7.45E-01	pCi/g	100.00%	-0.59	11/12/01 02:06 p		2.0	RICHRC5078
							3.62E-01	1.50E+01	-(1.8)		G	LSC3
Batch: 1263519 Work Order: EJTF11AM Report DB ID: 9EJTF110												
H-3	1.68E+00	U	1.2E+00	1.9E+00	2.82E+00	pCi/g	100.00%	0.6	11/7/01 10:29 p		5.017	906.0_H3_LCS
							1.30E+00	4.00E+02	(1.8)		G	LSC4
Batch: 1263520 Work Order: EJTF11AD Report DB ID: 9EJTF110												
STRONTIUM	3.95E+01		1.0E+00	1.1E+01	2.49E-01	pCi/g	50.60%	(158.7)	12/28/01 07:21 p		6.02	SRTOT_SEP_PRECIP
							1.16E-01	1.00E+00	(7.5)		G	GPC32A

ja 2/1/02

FORM I
SAMPLE RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J1H300187-**
Client Sample ID: **B12ML7**

SDG: **W03587**
Report No. : **18500**
COC No. : **B01-058-252**

Collection Date: **8/28/01**
Received Date: **8/30/01 8:55:00 AM**
Matrix: **SOIL**

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1263522	Work Order: EJTF11AV		Report DB ID: 9EJTF110									
CO-60	1.11E-02	U	2.6E-02	2.6E-02	4.63E-02	pCi/g		0.24	11/19/01 01:11 p		56.7	RICHRC5017
							5.00E-02	0.84			g	GER5\$1
CS-137	5.06E+00		6.1E-01	6.1E-01	3.89E-02	pCi/g		(130.)	11/19/01 01:11 p		56.7	RICHRC5017
							1.00E-01	(16.7)			g	GER5\$1
EU-152	2.24E-02	U	7.5E-02	7.5E-02	1.15E-01	pCi/g		0.19	11/19/01 01:11 p		56.7	RICHRC5017
							1.00E-01	0.59			g	GER5\$1
EU-154	1.77E-02	U	7.1E-02	7.1E-02	1.25E-01	pCi/g		0.14	11/19/01 01:11 p		56.7	RICHRC5017
							1.00E-01	0.5			g	GER5\$1
EU-155	-4.25E-02	U	5.2E-02	5.2E-02	8.39E-02	pCi/g		-0.51	11/19/01 01:11 p		56.7	RICHRC5017
							1.00E-01	-(1.6)			g	GER5\$1
RA-226	5.75E-01		1.0E-01	1.0E-01	7.13E-02	pCi/g		(8.1)	11/19/01 01:11 p		56.7	RICHRC5017
							1.00E-01	(11.3)			g	GER5\$1
RA-228	9.71E-01		2.0E-01	2.0E-01	1.51E-01	pCi/g		(6.4)	11/19/01 01:11 p		56.7	RICHRC5017
							2.00E-01	(9.6)			g	GER5\$1
Batch: 1263524	Work Order: EJTF11AQ		Report DB ID: 9EJTF110									
NP-237	0.00E+00	U	0.0E+00	1.4E-02	1.60E-02	pCi/g	68.90%	0.	12/14/01 10:24 a		2.02	D3XW
							1.00E+00	0.			G	ALP129

Number of Results: 24

Comments:

per 2/14/02

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000017

CERTIFICATE OF ANALYSIS

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

December 31, 2001

Attention: Joan Kessner

SAF Number	:	B01-058
Date SDG Closed	:	September 13, 2001
Number of Samples	:	Five (5)
Sample Type	:	Soil
SDG Number	:	W03587
Data Deliverable	:	45-Day / Summary

I. Introduction

On Between August 30 and September 10, 2001, five soil samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
EJTF1	B12ML7	SOIL	8/30/01
EJT8D	B12ML5-A	SOIL	8/30/01
EJT9N	B12ML6-A <i>Dayes</i>	SOIL	8/30/01
EJ95K	B12DC1-A <i>1/7/02</i>	SOIL	9/10/01
EJ95M	B12C89-B	SOIL	9/10/01

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
Americium-241 by method RICH-RC-5080
Neptunium-237 by method RICH-RC-5009
Plutonium-238, -239/40 by method RICH-RC-5010

000018

0002

Bechtel Hanford, Inc.
December 31, 2001
Page 2

Thorium-228, 230, 232 by method RICH-RC-5084
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

Liquid Scintillation Counting

Carbon-14 by method RICH-RC-5022

Nickel-63 by method RICH-RC-5069

Technetium-99 by method RICH-RC-5078

Tritium by method RICH-RC-5007

Total Uranium

Total Uranium by method RICH-RC-5058

Chemical Analyses

Chromium Hex by EPA method 7196

III. Quality Control

The analytical results for each analysis performed under SDG W03587 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Alpha Spectroscopy

Americium-241 by method RICH-RC-5080:

The reagent LCS was accidentally spilled during preparation. The tracer yield is low (19.5%) however, the radiochemical recovery is acceptable. The matrix LCS tracer yield and radiochemical recovery is acceptable. Except as noted, the LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Neptunium-237 by method RICH-RC-5009:

The LCS was recounted to verify radiochemical recovery. The recount was acceptable. The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

000019

AAAZ

Bechtel Hanford, Inc.
December 31, 2001
Page 3

Plutonium-238, -239/40 by method RICH-RC-5010:

The reagent LCS was accidentally spilled during preparation. The tracer yield is low (15.7%) however, the radiochemical recovery is acceptable. The matrix LCS tracer yield and radiochemical recovery is acceptable. Except as noted, the LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Thorium-228, 230, 232 by method RICH-RC-5084:

The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Uranium-234, -235, -238 by method RICH-RC-5079:

The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017:

The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Gas Proportional Counting

Total Strontium by method RICH-RC-5006:

The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Liquid Scintillation Counting

Carbon-14 by method RICH-RC-5022:

For solid matrices, the laboratory control and batch blank samples are direct count analyses. The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Nickel-63 by method RICH-RC-5069:

The LCS, batch blank, sample, sample duplicate (B12ML7) and sample matrix spike (B12ML7) results are within contractual requirements.

Technetium-99 by method RICH-RC-5078:

The LCS, batch blank, sample, sample duplicate (B12ML7) and sample matrix spike (B12ML7) results are within contractual requirements.

000020

~~0004~~

Bechtel Hanford, Inc.
December 31, 2001
Page 4

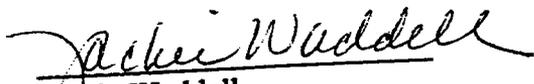
Tritium by method RICH-RC-5007:
The LCS, batch blank, sample and sample duplicate (B12ML7) results are within contractual requirements.

Total Uranium
Total Uranium by method RICH-RC-5058:
The LCS, batch blank, sample, sample duplicate (B12ML7) and sample matrix spike (B12ML7) results are within contractual requirements.

Chemical Analyses
Chromium Hex by EPA method 7196:
The samples were prepared as three analytical batches. The sample and sample duplicate agreement was unacceptable for the analytical batch containing B12DC1 and B12C89. ^A ^{11/1/02} ^B The batch was reanalyzed and accepted. The LCS, batch blank, samples, sample duplicate (B12ML7, B12ML6 and B12DC1) ^A ^{11/1/02} and sample matrix spike (B12ML7, B12ML6 and B12DC1) ^A ^{11/1/02} results are within contractual requirements.

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

Reviewed and approved:


Jackie Waddell
Project Manager

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B01-058-166

Page 1 of 2

Collector Thomas G. Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location B-7A/200 E	Field Logbook No. EL-1518-1	SAF No. B01-058	Air Quality <input type="checkbox"/>	
Ice Chest No. VIKING Sn 08/98 050011	Field Logbook No. EL-1518-1	COA B20TW2 A44C B20TW2674C ST	Method of Shipment Fed EX		
Shipped To REBCRA SEVERN TRENT	Offsite Property No. RSTR 106563	0/23/01	Bill of Lading/Air Bill No. NA		

POSSIBLE SAMPLE HAZARDS/REMARKS
 Radiological Field Instrument Readings on bottles ranged from 1.5MRB / <.5MRV to 3.0MRB / 1.3MRV. Possible of (Mercury) of this sample originally sent to RCF for on site analysis. Sample 2 of 2 represents custody transfer to RCF and re-off-site analysis. Appropriate off site custody transfer documents represent custody transfer to RCF for directed analysis.

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
Type of Container	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	250mL	250mL	250mL	250mL
Chromium Hex - 7196	Mercury - 7470 - (CV)	VOA 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	

Sample No.	Matrix *	Sample Date	Sample Time							
B12C89-BEJ95M	SOIL	8-23-01	0130	X	X		X	X		
210M3										
Returning 1x600ml jar for Mercury of 090501										

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By Greg Thomas/Dry Thomas	Date/Time 08/15/01	Received By R. Thoren	Date/Time 08/15/01
Relinquished By 200 TW 1 & 2 Tracker site	Date/Time 08/15/01	Received By R. Thoren	Date/Time 08/15/01
Relinquished By R. Thoren	Date/Time 8-28-01	Received By FED EX	Date/Time 8-28-01
Relinquished By Jill Clacker	Date/Time 090501 1700	Received By R. Thoren	Date/Time 09/01/01 12:30

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
 (3) Semi-VOA - 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
 (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Barium-133); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Cesium-137; Neptunium-237; NICKEL-63; Strontium-89,90

Samples stored in Ref. # 3728 at the 3728 Shipping Facility on 8/28/01. Collector not available to relinquish samples on 8/28/01 for shipment.

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B01-058-206

Page 1 of 1

Collector
Thomas G. Watson D.
Project Designation
00-TW-1 & 2 - Soil Sampling

Company Contact
Todd, M.E.
Telephone No.
(509) 372-9631

Project Coordinator
TRENT, S.J.

Price Code 8N
Data Turnaround

Air Quality 45 Days

Chest No.
King SN 08/98 050011

Field Logbook No.
EL-1518-1

COA B20TW244C
B20TW2674C ST

Method of Shipment
Fed EX

ppa
Savannah RT 9.28.01
Savannah Incorporated
Savannah ST Louis

Offsite Property No.
PSP 106563 8/24/01

Bill of Lading/Air Bill No.
N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
radiological Field Instruments Reading 35mR B
mR Y on bottles. Possible alpha
samples stored in Ref.# 5 site trailer
shipping facility on 8/24/01. Collector not
available to relinquish samples on 8/28/01 RT
for shipment.

Preservation	Cool 4C	None	None	None				
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1
Volume	60mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL

SAMPLE ANALYSIS

SDG
W03587

JII100167

Sample No.	Matrix *	Sample Date	Sample Time	Mercury - 770 - (CV)	Chromium Hex - 7196	See Item (1) in Special Instructions.	VOA - 8170A (VCL)	See Item (2) in Special Instructions.	See Item (3) in Special Instructions.	See Item (4) in Special Instructions.	Activity Scan
2DC1-A EJ95K	SOIL	8/24/01	0200		X					X	X

Returning 117102
160ml jar for Hexes 9.09.05.01
Had on 2nd disk

Ti = 70

B12 MKO

CHAIN OF POSSESSION

Sign/Print Names

SPECIAL INSTRUCTIONS

Matrix *

Relinquished By/Removed From Thomas G. Watson 8/24/01	Date/Time 0600	Received By/Stored In Todd M.E. 8/24/01	Date/Time 0600
Relinquished By/Removed From S. J. Trent 8.28.01	Date/Time 0415	Received By/Stored In R. Thoren 8.28.01	Date/Time 0415
Relinquished By/Removed From S. J. Trent 8.28.01	Date/Time 0450	Received By/Stored In F. D. ... 8.29.01	Date/Time 0450
Relinquished By/Removed From J. Clark 090501 1700	Date/Time	Received By/Stored In ... 09/10/01	Date/Time 12:30

(1) TC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (soil) - 9045
(2) Semi-VOA - 8170A (Add-On) (Tributyl phosphate); TPH Diesel Range - WTP11-B
(3) ICP Metals - 80101R (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)
(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

- S - Soil
- SE - Sediment
- SI - Sludge
- W - Water
- Q - Oil
- A - Air
- DS - Dross Solids
- DL - Dross Liquids
- T - Tissue
- WT - Wipe
- L - Liquid
- V - Vegetation
- X - Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-251		Page 1 of 1	
Collector Thomas G/Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N	
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		Field Logbook No. EL-1518-1		SAF No. B01-058		Data Turnaround 45 Days	
Ice Chest No. Viking S/N/08 98 05000		Offsite Property No. RSR 10694 @ 2/27/01		COA B20TW2-A44C B20TW2674C JT		Method of Shipment Fed EX		Air Quality <input type="checkbox"/>	
Shipped To Savern Trent Incorporated - RICHLAND		Bill of Lading/Air Bill No. NA							

POSSIBLE SAMPLE HAZARDS/REMARKS
 FIELD RADIOLOGICAL INSTRUMENTS INDICATE
 20CPMA } ON CONTACT
 1MRB }
 (<0.5mR/h)

Samples stored in Ref. # B at the
 3728 Shipping Facility on 8/21/01
 Collector not available to relinquish
 samples on 8/30/01 for shipment. RT
8:30.01

3728

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	250mL	60mL
See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan		

Sample No.	Matrix *	Sample Date	Sample Time						
B12ML6-AEJT9U	SOIL	8/27/01	0430		X			X	X
Dayes 1/7/02									B12 MK3

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
SWARSON/RENT	08/27/01 0745	REF. # B	08/27/01 0745
Rel 1B 3728	8:30.01	R. Thore	8:30.01
Rel 1B 3728	8:30.01	R. Thore	8:30.01
Rel 1B 3728	8:30.01	R. Thore	8:30.01
Rel 1B 3728	8:30.01	R. Thore	8:30.01
Rel 1B 3728	8:30.01	R. Thore	8:30.01
Rel 1B 3728	8:30.01	R. Thore	8:30.01

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO3/NO2 - 352.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VOA - 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPM-D

(4) Gamma Spectrometry (Cesium-134, Cesium-137, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Cesium-137; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - 113; Isotopic Uranium

Matrix *

- S-Soil
- SD-Sediment
- SO-Solid
- SL-Sludge
- W-Water
- O-Oil
- A-Air
- DS-Drum Solid
- DL-Drum Liquid
- T-Tissue
- W-Wipe
- L-Liquid
- V-Vegetation
- X-Other

10/1/01

Cooling Req may not be met

LABORATORY SECTION	Received By	Disposed By	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method		

Q-27038

W03587

JH 300271

DATE 7-20-01

B01-058-250

Page 1 of 1

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Price Code 8N

Data Turnaround 45 Days

Collector Thomas G./Watson D.

Company Contact Todd, M.E. Telephone No. (509) 372-9631

Project Coordinator TRENT, SJ

Project Designation 200-TW-1 & 2 - Soil Sampling

Sampling Location B-7A/200 E

SAF No. B01-058

Ice Chest No. **Viking S/N 08 9805000**

Field Logbook No. EL-1518-1

COA **B26TW244C**
B20TW2674C AT

Method of Shipment Fed EX

Shipped To Severn Trent Incorporated - RCHLND

Offsite Property No. **25R 106949 8/27/01**

Bill of Lading/Air Bill No. **NA**

POSSIBLE SAMPLE HAZARDS/REMARKS
FIELD RADIOLOGICAL WORKS IN PROGRESS
100C/ML
200MR
< 0.5 MRY

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
	aG	aG	aG	aG	aG	aG	aG	aG
Type of Container	1	1	1	1	1	1	1	1
No. of Container(s)	1	1	1	1	1	1	1	1
Volume	120mL	60mL	60mL	250mL	60mL	250mL	25mL	60mL
See item (1) in Special Instructions.		Mercury - 7470 - (SV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan

Samples stored in Ref. # **1210** at the 3728 Shipping Facility on **8/27/01**. Collector not available to relinquish samples on **8/30/01** for shipment.

RT 8/30/01
SAMPLE ANALYSIS

000005

Sample No.	Matrix *	Sample Date	Sample Time						
B12ML5-AEJT8D	SOIL	8/27/01	0115						X X
Dayes 1/7/02									B12MKZ

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
<i>OS WATSON</i>	08/27/01 0645	<i>REF. TW112</i>	08/27/01 0645
<i>REF. TW112</i>	08/30/01 0330	<i>R. Thore</i>	08/30/01 0330
<i>REF. TW112</i>	08/30/01 0500	<i>FEDOR</i>	08/30/01 0500
<i>REF. TW112</i>	08/30/01 1210	<i>Pam K...</i>	08/30/01 1210
<i>REF. TW112</i>	08/30/01 1210	<i>P. 2000 MR/NA</i>	08/30/01 1210

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Pb) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead);
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO3/NO2 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
 (3) Semi-VOA - 8270A (Add-On) (Tributyl phosphate); TPH Diesel Range - WTPH D
 (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add on (Radium-226, Radium-228); Isotopic Dismutium, Isotopic Thorium (Thorium-232), Americium-241, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 - Total G, Total Uranium-238, Total Uranium, Tritium - H3, Isotopic Uranium

Cooling Req. May not be met

- S=Soil
- SD=Soil
- SO=Soil
- SL=Sludge
- W=Water
- O=Oil
- A=Air
- DS=Drum Solid
- DL=Drum Liquid
- T=Time
- W=Wipe
- L=Liquid
- V=Vegetation
- X=Other

LABORATORY SECTION	Received By	Disposed By
FINAL SAMPLE DISPOSITION	Disposal Method	

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-252	Page 1 of 1
Collector Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround 45 Days	
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location B-7A/200 E	SAF No. B01-058	Air Quality <input type="checkbox"/>		Hand Delivery		
Ice Chest No SML1320	Field Logbook No. EL-1518-1	COA B25TWZ44K B28TW2674G ST	Method of Shipping Hand Delivery				
Shipped To Severn Trent Incorporated - RICHLAND	Offsite Property No. WA 8/28/01	Bill of Lading/Air Bill No. WA					

POSSIBLE SAMPLE HAZARDS/REMARKS Radiological. Field Instruments Reading background Samples stored in Ref. # B at the 3728 Shipping Facility on 8/28/01. Collector not available to relinquish samples on 8/30/01 for shipment. RT 83001 SDG W03587 JIH300187	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
	Type of Container	g	g	g	g	g	g	g	g	
	No. of Container(s)	1	1	1	1	1	1	1	1	
	Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL	
	See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8270A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan		

Sample No.	Matrix *	Sample Date	Sample Time							
B12ML7 EJTF1	SOIL	08/28/01	0800		X			X	X	B12ML7

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From Greg Thomas/Watson D.	Date/Time 8/28/01 0800	Received By/Stored In R. J. Trent	Date/Time 8/28/01 0830
Relinquished By/Removed From R. J. Trent	Date/Time 8/30/01 8:30	Received By/Stored In R. J. Trent	Date/Time 8/30/01 8:30
Relinquished By/Removed From Greg Thomas/Watson D.	Date/Time 8/28/01 0855	Received By/Stored In J. H. Moore	Date/Time 8/30/01 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In L. J. Moore	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) - (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 352.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VOA - 8270A (Add-On) (Tributyl phosphine); TPH Diesel Range - WIPH-D

(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic/Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

- Matrix *
- S=Soil
 - SB=Soil/rock
 - SO=Solid
 - SL=Sludge
 - W=Water
 - O=Oil
 - A=Air
 - DS=Drum Solids
 - DL=Drum Liquids
 - T=Tissue
 - W=Wipe
 - L=Liquid
 - V=Vegetation
 - X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5
Data Validation Supporting Documentation

000027

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT: 200 + w 1 + 2	DATA PACKAGE: W03587				
VALIDATOR: TLI	LAB: ST		DATE: 2/6/02		
CASE:	SDG: W03587				
ANALYSES PERFORMED					
Gross Alpha/Beta	<u>Strontium-90</u>	<u>Technetium-99</u>	<u>Alpha Spectroscopy</u>	<u>Gamma Spectroscopy</u>	
<u>Total Uranium</u>	Radium-22	<u>Tritium</u> N163	✓ CR II		
SAMPLES/MATRIX					
B12C89-B		B12DC1-A		B12ML6-A B12ML7	
B12ML5-A					
Sci/					

1. Completeness N/A

Technical verification forms present? Yes No N/A

Comments: _____

2. Initial Calibration (Levels D, E) N/A

Instruments/detectors calibrated? Yes No N/A

Initial calibration acceptable? Yes No N/A

Standards NIST traceable? Yes No N/A

Appendix A – Radiochemical Data Validation Checklist

Standards Expired?Yes No N/A

Calculation check acceptable?Yes No N/A

Comments: _____

3. Continuing Calibration (Levels D, E) N/A

Calibration checked within required frequency?Yes No N/A

Calibration check acceptable?Yes No N/A

Calibration check standards traceable?Yes No N/A

Calibration check standards expired?Yes No N/A

Calculation check acceptable?Yes No N/A

Comments: _____

4. Background Counts (Levels D, E) N/A

Background Counts checked within required frequency?Yes No N/A

Background Counts acceptable?Yes No N/A

Calculation check acceptable?Yes No N/A

Comments: _____

Appendix A – Radiochemical Data Validation Checklist

5. Blanks (Levels B, C, D, E) N/A

Method blank analyzed within required frequency? Yes No N/A

Method blank results acceptable? Yes No N/A

Analytes detected in method blank? Yes No N/A

Field blank(s) analyzed? Yes No N/A

Field blank results acceptable? Yes No N/A

Analytes detected in field blank(s)? Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: MLG-A ✓ DCIA ✓ 8iv ✓ 7 ✓

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) N/A

LCS /BSS analyzed within required frequency? Yes No N/A

LCS/BSS recoveries acceptable? Yes No N/A

LCS/BSS traceable? (Levels D,E) Yes No N/A

LCS/BSS expired? (Levels D,E) Yes No N/A

LCS/BSS levels correct? (Levels D,E) Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: L7 ✓ L6 ✓

DCI C87 14570 - J all detected

TC99 - 4990 L7 - J

7. Chemical Carrier Recovery (Levels C, D, E) N/A

Chemical carrier added? Yes No N/A

Chemical recovery acceptable? Yes No N/A

Chemical carrier traceable? (Levels D, E) Yes No N/A

Appendix A – Radiochemical Data Validation Checklist

Chemical carrier expired? (Levels D, E) Yes No N/A

Transcription/Calculation errors? (Levels D, E)..... Yes No N/A

Comments: _____

8. Tracer Recovery (Levels C, D, E) N/A

Tracer added?..... Yes No N/A

Tracer recovery acceptable? Yes No N/A

Tracer traceable? (Levels D, E) Yes No N/A

Tracer expired? (Levels D, E)..... Yes No N/A

Transcription/Calculation errors? (Levels D, E)..... Yes No N/A

Comments: _____

9. Matrix Spikes (Levels C, D, E)..... N/A

Matrix spike analyzed? Yes No N/A

Spike recoveries acceptable? Yes No N/A

Spike source traceable? (Levels D, E) Yes No N/A

Spike source expired? Levels D, E)..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: No MS 3H 25 J + 99 - 69.6820 J M7

No C14 - J

CRVI - 873 DCI-A - J M - NO MS

Appendix A – Radiochemical Data Validation Checklist

10. Duplicates (Levels C, D, E) N/A

Duplicates Analyzed at required frequency? Yes No N/A

RPD Values Acceptable? Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: - RPD's reported ok
- analytes w/ RER's appear to be within QC
limits

11. Field QC Samples (Levels C, D E) N/A

Field duplicate sample(s) analyzed? Yes No N/A

Field duplicate RPD values acceptable? Yes No N/A

Field split sample(s) analyzed? Yes No N/A

Field split RPD values acceptable? Yes No N/A

Performance audit sample(s) analyzed? Yes No N/A

Performance audit sample results acceptable? Yes No N/A

Comments: _____

12. Holding Times (All levels)

Are sample holding times acceptable? Yes No N/A

Comments: _____

Appendix A – Radiochemical Data Validation Checklist

13. Results and Detection Limits (All Levels)..... N/A

Results reported for all required sample analyses?..... Yes No N/A

Results supported in raw data?(Levels D, E)..... Yes No N/A

Results Acceptable? (Levels D, E) Yes No N/A

Transcription/Calculation errors? (Levels D, E)..... Yes No N/A

MDA's meet required detection limits? Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

000024

FORM II

Date: 02-Jan-02

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03587

Collection Date: 8/24/01 2:00:00 PM

Lot-Sample No.: J11100167-

Report No.: 18500

Received Date: 9/10/01 12:30:00 PM

Client Sample ID: B12DC1 DUP ^{-A} *Payes* 1/7/02

COC No.: B01-058-206

Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1267165	Work Order:			Report DB ID: EJ95K1AH		Orig Sa DB ID: 9EJ95K20						
HEXCHROME	1.68E+01			0.0E+00	8.00E-02	mg/kg	N/A	(209.5)	9/27/01		2.8	EPA7196
	1.78E+01	RPD	0.1			3.00E-02		N/A			G	

Number of Results: 1

Comments:

000025

1/7/02

FORM II

Date: 02-Jan-02

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03587

Collection Date: 8/27/01 4:30:00 AM

Lot-Sample No.: J1H300271-

Report No.: 18500

Received Date: 8/30/01 12:10:00 PM

Client Sample ID: B12ML6 DUP ^{-A Dayes} 11/7/02

COC No.: B01-058-251

Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Alliquot Size	Analy Method, Primary Detector
atch: 1247459	Work Order: EJT9N1AE			Report DB ID: EJT9N1ER		Orig Sa DB ID: 9EJT9N10						
HEXCHROME	8.00E-02	U		0.0E+00	8.00E-02	mg/L	N/A	(1.)	9/9/01		2.835	EPA7196
	8.00E-02	RPD	0.0					N/A			G	

Number of Results: 1

Comments:

000000

TL Richland
STLRchDupV3.81 A97

RER - Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{sq}(\text{TPUs})+\text{sq}(\text{TPUd}))]$ as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 02-Jan-02

DUPLICATE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J1H300187-
 Client Sample ID: B12ML7 DUP

SDG: W03587
 Report No.: 18500
 COC No.: B01-058-252

Collection Date: 8/28/01
 Received Date: 8/30/01 8:55:00 AM
 Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector	
atch: 1242487	Work Order: EJTF11AT		Report DB ID: EJTF11TR		Orig Sa DB ID: 9EJTF110								
HEXCHROME	8.00E-02	U		0.0E+00	8.00E-02	mg/kg	N/A	(1.)	9/9/01		2.591	EPA7196	
	8.00E-02	RPD	0.0			3.00E-02		N/A			G		
atch: 1263498	Work Order: EJTF11AW		Report DB ID: EJTF11WR		Orig Sa DB ID: 9EJTF110								
PU-238	4.20E-03	U	1.0E-02	1.0E-02	2.29E-02	pCi/g	61.24%	0.18	12/22/01 12:01 p		2.03	RICHRC5010	
	-4.03E-04	RER	0.9			1.00E+00		0.83			G	ALP37	
PU239/40	5.33E-01		1.0E-01	1.4E-01	2.28E-02	pCi/g	61.24%	(23.4)	12/22/01 12:01 p		2.03	RICHRC5010	
	4.51E-01	RER	0.9			1.00E+00		(7.9)			G	ALP37	
<i>Alpha Spec Result Sum = 5.4E-01</i>													
atch: 1263500	Work Order: EJTF11AX		Report DB ID: EJTF11XR		Orig Sa DB ID: 9EJTF110								
AM-241	1.72E-01		4.8E-02	5.6E-02	1.52E-02	pCi/g	93.98%	(11.3)	12/27/01 12:56 p		2.03	RICHRC5080	
	7.64E-02	RER	2.8			1.00E+00		(6.2)			G	ALP38	
<i>Alpha Spec Result Sum = 7.1E-01</i>													
atch: 1263506	Work Order: EJTF11A0		Report DB ID: EJTF110R		Orig Sa DB ID: 9EJTF110								
U-234	9.17E-01		2.1E-01	2.8E-01	3.15E-02	pCi/g	53.09%	(29.2)	12/19/01 08:38 p		1.01	RICHRC5079	
	8.84E-01	RER	0.2			1.00E+00		(6.6)			G	ALP10	
U-235	2.32E-02	U	3.3E-02	3.3E-02	3.15E-02	pCi/g	53.09%	0.74	12/19/01 08:38 p		1.01	RICHRC5079	
	6.98E-02	RER	1.4			1.00E+00		(1.4)			G	ALP10	
U-238	6.14E-01		1.7E-01	2.1E-01	4.67E-02	pCi/g	53.09%	(13.1)	12/19/01 08:38 p		1.01	RICHRC5079	
	7.89E-01	RER	1.1			1.00E+00		(5.9)			G	ALP10	
<i>Ratio U-234/238 = 1.5</i>													
<i>Alpha Spec Result Sum = 2.3E+00</i>													
atch: 1263508	Work Order: EJTF11A2		Report DB ID: EJTF112R		Orig Sa DB ID: 9EJTF110								
TOTAL-URANIUM	2.18E+00		0.0E+00	3.5E-01	9.78E-06	ug/g		(223149.4)	12/11/01 05:40 p	1.05	1.05	RICHRC5015	
	2.02E+00	RER	0.7			1.00E+00		(12.4)			ML	LIP3	
<i>Alpha Spec Result Sum = 2.3E+00</i>													

TL Richland
 STLRchDupV3.81 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.
 MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 02-Jan-02

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03587

Collection Date: 8/28/01

Lot-Sample No.: J1H300187-1

Report No.: 18500

Received Date: 8/30/01 8:55:00 AM

Client Sample ID: B12ML7 DUP

COC No.:

Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector	
Batch: 1263510	Work Order: EJTF11A3		Report DB ID: EJTF113R		Orig Sa DB ID: 9EJTF110								
TH-228	8.16E-01		1.6E-01	2.0E-01	6.21E-02	pCi/g	78.64%	(13.1)	12/19/01 10:22 a		2.03	RICHRC5011	
	6.93E-01	RER	0.9			1.00E+00		(8.2)			G	ALP118	
TH-230	5.32E-01		1.2E-01	1.4E-01	2.78E-02	pCi/g	78.64%	(19.1)	12/19/01 10:22 a		2.03	RICHRC5011	
	5.16E-01	RER	0.2			1.00E+00		(7.4)			G	ALP118	
TH-232	6.16E-01		1.3E-01	1.6E-01	1.87E-02	pCi/g	78.64%	(32.8)	12/19/01 10:22 a		2.03	RICHRC5011	
	5.62E-01	RER	0.5			1.00E+00		(7.8)			G	ALP118	
<i>Alpha Spec Result Sum = 2.0E+00</i>													
Batch: 1263511	Work Order: EJTF11A4		Report DB ID: EJTF114R		Orig Sa DB ID: 9EJTF110								
C-14	1.27E-01	U	3.3E-01	5.1E-01	7.84E-01	pCi/g	100.00%	0.16	11/7/01 11:00 p		2.014	C14_LSC	
	-2.47E-02	RER	0.4			5.00E+01		0.5			G	LSC3	
<i>Alpha Spec Result Sum = 2.0E+00</i>													
Batch: 1263512	Work Order: EJTF11A6		Report DB ID: EJTF116R		Orig Sa DB ID: 9EJTF110								
NI-63	-1.44E+00	U	2.3E+00	3.6E+00	5.73E+00	pCi/g	90.59%	-0.25	12/11/01 10:56 p		0.28	NI63LSC	
	-1.29E-01	RER	0.5			3.00E+01		-0.79			G	LSC6	
<i>Alpha Spec Result Sum = 2.0E+00</i>													
Batch: 1263515	Work Order: EJTF11A7		Report DB ID: EJTF117R		Orig Sa DB ID: 9EJTF110								
TC-99	-3.19E-01	U	3.0E-01	5.0E-01	7.48E-01	pCi/g	100.00%	-0.43	11/12/01 03:08 p		2.0	RICHRC5078	
	-4.41E-01	RER	0.3			1.50E+01		-(1.3)			G	LSC3	
<i>Alpha Spec Result Sum = 2.0E+00</i>													
Batch: 1263519	Work Order: EJTF11A9		Report DB ID: EJTF119R		Orig Sa DB ID: 9EJTF110								
H-3	3.43E-01	U	1.2E+00	1.7E+00	2.84E+00	pCi/g	100.00%	0.12	11/7/01 11:11 p		5.018	906.0_H3_LCS	
	1.68E+00	RER	1.0			4.00E+02		0.39			G	LSC4	
<i>Alpha Spec Result Sum = 2.0E+00</i>													
Batch: 1263520	Work Order: EJTF11CA		Report DB ID: EJTF11AR		Orig Sa DB ID: 9EJTF110								

STL Richland
 ptSTLRchDupV3.81 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPU_s)+sq(TPU_d))] as defined by ICPT BOA.
 MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 02-Jan-02

DUPLICATE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J1H300187-1
 Client Sample ID: B12ML7 DUP

SDG: W03587
 Report No.: 18500
 COC No.:

Collection Date: 8/28/01
 Received Date: 8/30/01 8:55:00 AM
 Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
STRONTIUM	3.86E+01		1.0E+00	1.0E+01	2.58E-01	pCi/g	47.20%	(149.6)	12/28/01 07:21 p		6.01	SRTOT_SEP_PRECI
	3.95E+01	RER	0.1			1.00E+00		(7.5)			G	GPC32B
atch: 1263522	Work Order: EJTF11CC			Report DB ID: EJTF11CR		Orig Sa DB ID: 9EJTF110						
CO-60	8.73E-03	U	2.9E-02	2.9E-02	5.06E-02	pCi/g		0.17	11/19/01 01:12 p		54.2	RICHRC5017
	1.11E-02	RER	0.1			5.00E-02		0.59			g	GER1\$1
CS-137	5.97E+00		7.1E-01	7.1E-01	4.45E-02	pCi/g		(134.3)	11/19/01 01:12 p		54.2	RICHRC5017
	5.06E+00	RER	1.9			1.00E-01		(16.7)			g	GER1\$1
EU-152	-8.90E-02	U	8.6E-02	8.6E-02	1.15E-01	pCi/g		-0.78	11/19/01 01:12 p		54.2	RICHRC5017
	2.24E-02	RER	2.0			1.00E-01		-(2.1)			g	GER1\$1
EU-154	-1.17E-01	U	8.6E-02	8.6E-02	1.35E-01	pCi/g		-0.87	11/19/01 01:12 p		54.2	RICHRC5017
	1.77E-02	RER	2.4			1.00E-01		-(2.7)			g	GER1\$1
EU-155	-1.94E-02	U	5.9E-02	5.9E-02	9.86E-02	pCi/g		-0.2	11/19/01 01:12 p		54.2	RICHRC5017
	-4.25E-02	RER	0.6			1.00E-01		-0.65			g	GER1\$1
RA-228	5.86E-01		1.1E-01	1.1E-01	8.11E-02	pCi/g		(7.2)	11/19/01 01:12 p		54.2	RICHRC5017
	5.75E-01	RER	0.2			1.00E-01		(10.7)			g	GER1\$1
RA-228	1.16E+00	U	2.3E-01	2.3E-01	2.54E-01	pCi/g		(4.5)	11/19/01 01:12 p		54.2	RICHRC5017
	9.71E-01	RER	1.2			2.00E-01		(9.8)			g	GER1\$1
atch: 1263524	Work Order: EJTF11CD			Report DB ID: EJTF11DR		Orig Sa DB ID: 9EJTF110						
NP-237	0.00E+00	U	0.0E+00	1.3E-02	1.41E-02	pCi/g	80.61%	0.	12/14/01 10:25 a		2.01	D3XW
	0.00E+00	RER	0.0			1.00E+00		0.			G	ALP130

Number of Results: 24

Comments:

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPU_s)+sq(TPU_d))] as defined by ICPT BOA.
 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

TL Richland
 xSTLRchDupV3.81 A97

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J1H300000-

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1242487	Work Order: EJVQ11AA		Report DB ID: EJVQ11AB									
HEXCHROME	2.00E-03			0.0E+00	2.00E-03	mg/L	N/A	1. N/A	9/9/01		100.0 ML	EPA7196

Number of Results: 1

Comments:

000000

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11040000-

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
itc: 1247459	Work Order: EJ1211AA			Report DB ID: EJ1211AB								
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1. N/A	9/9/01		100.0 ML	EPA7196

Number of Results: 1

Comments:

000041

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II
BLANK RESULTS

Date: 02-Jan-02

Lab Name: STL Richland
Lot-Sample No.: J11200000-498

SDG: W03587
Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
tch: 1263498	Work Order: EKTQX1AA		Report DB ID: EKTQX1AX									
PU-238	-8.24E-04	U	1.2E-03	1.2E-03	2.35E-02	pCi/g	56.97%	-0.04	12/22/01 12:02 p		2.01	RICHRC5010
					4.79E-03	1.00E+00		-(1.4)			G	ALP38
PU239/40	-1.23E-03	U	1.4E-03	1.4E-03	2.56E-02	pCi/g	56.97%	-0.05	12/22/01 12:02 p		2.01	RICHRC5010
					5.86E-03	1.00E+00		-(1.7)			G	ALP38
tch: 1263498	Work Order: EKTQX1AD		Report DB ID: EKTQX1DB									
PU-238	-1.98E-03	U	2.8E-03	2.8E-03	5.64E-02	pCi/g	24.90%	-0.04	12/22/01 12:02 p		2.0	RICHRC5010
					1.15E-02	1.00E+00		-(1.4)			G	ALP41
PU239/40	2.07E-02	U	3.5E-02	3.5E-02	6.57E-02	pCi/g	24.90%	0.31	12/22/01 12:02 p		2.0	RICHRC5010
					1.62E-02	1.00E+00		(1.2)			G	ALP41

Number of Results: 4

Comments:

11200000-498

FORM II
BLANK RESULTS

Date: 02-Jan-02

Lab Name: STL Richland
Lot-Sample No.: J11200000-500

SDG: W03587
Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
tch: 1263500	Work Order: EKTQ71AA		Report DB ID: EKTQ71AX									
AM-241	3.67E-03	U	9.8E-03	9.8E-03	2.41E-02	pCi/g	78.75%	0.15	12/27/01 12:56 p		2.01	RICHRC5080
					5.52E-03	1.00E+00		0.75			G	ALP37
tch: 1263500	Work Order: EKTQ71AD		Report DB ID: EKTQ71DB									
AM-241	9.07E-03	U	1.8E-02	1.8E-02	2.46E-02	pCi/g	45.41%	0.37	12/27/01 12:58 p		2.0	RICHRC5080
						1.00E+00		1.			G	ALP47

Number of Results: 2

Comments:

000000

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-506

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Itch: 1263506	Work Order: EKTRG1AA		Report DB ID: EKTRG1AB									
U-234	2.30E-02	U	3.0E-02	3.0E-02	4.59E-02	pCi/g	76.74%	0.5	12/19/01 08:39 p		1.0	RICHRC5079
					1.13E-02	1.00E+00		(1.5)			G	ALP11
U-235	-6.87E-04	U	1.4E-03	1.4E-03	3.46E-02	pCi/g	76.74%	-0.02	12/19/01 08:39 p		1.0	RICHRC5079
					5.65E-03	1.00E+00		-1.			G	ALP11
U-238	7.90E-03	U	1.7E-02	1.7E-02	3.46E-02	pCi/g	76.74%	0.23	12/19/01 08:39 p		1.0	RICHRC5079
					5.65E-03	1.00E+00		0.91			G	ALP11

Ratio U-234/238 = 2.9

Number of Results: 3

Comments:

000000

)
)
)
)

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-508

Report No.: 18500

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
atch: 1283508	Work Order: EKTRM1AA		Report DB ID: EKTRM1AB									
TOTAL-URANIUM	1.22E-02		0.0E+00	2.9E-03	9.78E-06	ug/g		(1245.4)	12/11/01 05:44 p	1.0	1.0	RICHRC5015
					3.46E-06			(8.3)		ML	ML	LIP3

Number of Results: 1

Comments:

000000

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-510

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
tch: 1263510	Work Order: EKTRX1AA		Report DB ID: EKTRX1AB									
TH-228	2.83E-02	U	3.0E-02	3.0E-02	3.75E-02	pCi/g	77.18%	0.75	12/19/01 10:22 a		2.0	RICHRC5011
					8.58E-03	1.00E+00		(1.9)			G	ALP119
TH-230	1.34E-02	U	1.9E-02	1.9E-02	1.81E-02	pCi/g	77.18%	0.74	12/19/01 10:22 a		2.0	RICHRC5011
						1.00E+00		(1.4)			G	ALP119
TH-232	0.00E+00	U	0.0E+00	1.6E-02	1.81E-02	pCi/g	77.18%	0.	12/19/01 10:22 a		2.0	RICHRC5011
						1.00E+00		0.			G	ALP119

Number of Results: 3

Comments:

000000

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II
BLANK RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-511

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
atch: 1263511	Work Order: EKTR51AE		Report DB ID: EKTR51EB									
C-14	3.29E-01	U	3.4E-01	5.2E-01	7.89E-01	pCi/g	100.00%	0.42	11/7/01 08:53 p		2.0	C14_LSC
					3.78E-01	5.00E+01		(1.3)			G	LSC3

Number of Results: 1

Comments:

000077

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-512

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
atch: 1263512	Work Order: EKTR61AA		Report DB ID: EKTR61AB									
NI-63	-9.92E-01	U	2.6E+00	4.1E+00	6.46E+00	pCi/g	90.44%	-0.15	12/12/01 12:38 a		0.25	Ni63LSC
					3.13E+00	3.00E+01		-0.48			G	LSC6

Number of Results: 1

Comments:

000000

0000

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-515

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1283515	Work Order: EKTR71AA		Report DB ID: EKTR71AB									
TC-99	-2.50E-01	U	3.0E-01	5.1E-01	7.45E-01	pCi/g	100.00%	-0.34	11/12/01 05:12 p		2.0	RICHRC5078
					3.62E-01	1.50E+01		-0.99			G	LSC3

Number of Results: 1

Comments:

610000

STL Richland
 tSTLRchBlank V3.81 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-519

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
atch: 1263519	Work Order: EKT21AE		Report DB ID: EKT21EB									
H-3	2.59E-02	U	1.1E-01	1.7E-01	2.81E-01	pCi/g	100.00%	0.09	11/7/01 09:04 p		10.0	906.0_H3_LCS
					1.30E-01	4.00E+02		0.3			G	LSC4

Number of Results: 1

Comments:

000050

FORM II
BLANK RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J11200000-520**

SDG: **W03587**
Report No.: **18500**

Matrix: **SOIL**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 1263520	Work Order: EKT71AA				Report DB ID: EKT71AB							
STRONTIUM	4.06E-02	U	6.7E-02	6.8E-02	1.49E-01	pCi/g	89.10%	0.27	12/28/01 07:21 p		6.0	SRTOT_SEP_PRECIP
					6.91E-02	1.00E+00		(1.2)			G	GPC32C

Number of Results: 1

Comments:

000051

0000

FORM II
BLANK RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J11200000-522**

SDG: **W03587**
Report No. : **18500**

Matrix: **SOIL**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1263522	Work Order: EKT81AA		Report DB ID: EKT81AX									
CO-60	9.42E-03	U	2.0E-02	2.0E-02	3.69E-02	pCi/g		0.26	11/19/01 01:13 p		52.0	RICHRC5017
								5.00E-02			g	GER7\$1
CS-137	-8.84E-03	U	1.8E-02	1.8E-02	3.08E-02	pCi/g		-0.29	11/19/01 01:13 p		52.0	RICHRC5017
								1.00E-01			g	GER7\$1
EU-152	-2.14E-02	U	4.4E-02	4.4E-02	7.29E-02	pCi/g		-0.29	11/19/01 01:13 p		52.0	RICHRC5017
								1.00E-01			g	GER7\$1
EU-154	1.68E-02	U	5.5E-02	5.5E-02	9.92E-02	pCi/g		0.17	11/19/01 01:13 p		52.0	RICHRC5017
								1.00E-01			g	GER7\$1
EU-155	-1.74E-03	U	3.6E-02	3.6E-02	5.99E-02	pCi/g		-0.03	11/19/01 01:13 p		52.0	RICHRC5017
								1.00E-01			g	GER7\$1
RA-226	1.63E-02	U	1.1E-01	1.1E-01	8.86E-02	pCi/g		0.18	11/19/01 01:13 p		52.0	RICHRC5017
								1.00E-01			g	GER7\$1
RA-228	-1.82E-02	U	1.4E-01	1.4E-01	1.66E-01	pCi/g		-0.11	11/19/01 01:13 p		52.0	RICHRC5017
								2.00E-01			g	GER7\$1

Number of Results: 7

Comments:

000052

FORM II

Date: 02-Jan-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-524

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1263524	Work Order: EKTVC1AA		Report DB ID: EKTVC1AB									
NP-237	-5.85E-04	U	1.2E-03	1.2E-03	2.94E-02	pCi/g	57.96%	-0.02	12/14/01 10:25 a		2.0	D3XW
					4.81E-03	1.00E+00		-1.			G	ALP131

Number of Results: 1

Comments:

000053

)
)
)
)
)

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II
BLANK RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**

SDG: **W03587**

Lot-Sample No.: **J11240000-**

Report No. : **18500**

Matrix: **WATER**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
tch: 1267165	Work Order:		Report DB ID: EKORC1AA									
HEXCHROME	0.00E+00	U		0.0E+00	2.00E-03	mg/L	N/A	0. N/A	9/27/01		100.0 ML	EPA7196

Number of Results: 1

Comments:

000000

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J1H300000-

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
tch: 1242487	Work Order: EJVQ11AC		Report DB ID: EJVQ11CS										
HEXCHROME	9.61E-01			0.0E+00	2.00E-03	mg/L	N/A	1.00E+00		96.10%	9/9/01	100.0	EPA7196
							Rec Limits:	85.	115.	0.0		ML	

Number of Results: 1

Comments:

000050

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**

SDG: **W03587**

Lot-Sample No.: **J11040000-**

Report No. : **18500**

Matrix: **SOIL**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Alliquot Size	Analy Method, Primary Detector
tch: 1247459	Work Order: EJ1211AC		Report DB ID: EJ1211CS										
HEXCHROME	9.57E-01			0.0E+00	2.00E-03	mg/L	N/A	1.00E+00		95.70%	9/9/01	100.0	EPA7196
							Rec Limits:	85.	115.	0.0		ML	

Number of Results: 1

Comments:

000056

000056

FORM II

Date: 02-Jan-02

LCS RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11100167-

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
atch: 1267165	Work Order:												
						Report DB ID: EJ95K1AG							
HEXCHROME	5.80E+01			0.0E+00	8.00E-02	mg/kg	N/A	3.98E+01		145.60%	9/27/01	2.8	EPA7196
							Rec Limits:	85.	115.	0.5		G	

Number of Results: 1

Comments:

000000

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-498

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analy Method, Primary Detector
stch: 1263498	Work Order: EKTQX1AC		Report DB ID: EKTQX1CM										
PU239/40	3.35E+00		2.5E-01	6.0E-01	2.38E-02	pCi/g	64.15%	3.35E+00	1.0E-01	100.17%	12/22/01 12:02 p	2.03	RICHRC5010
							Rec Limits:	70.	130.	0.0		G	ALP39
stch: 1263498	Work Order: EKTQX1AE		Report DB ID: EKTQX1ES										
PU239/40	3.57E+00		5.5E-01	1.0E+00	8.51E-02	pCi/g	15.70%	3.39E+00	1.1E-01	105.37%	12/22/01 12:03 p	2.0	RICHRC5010
							Rec Limits:	70.	130.	0.1		G	ALP47

Number of Results: 2

Comments:

000058

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-500

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector	
atch: 1263500		Work Order: EKTQ71AC			Report DB ID: EKTQ71CM									
AM-241	4.45E+00		2.9E-01	8.2E-01	1.86E-02	pCi/g	82.50%	4.47E+00	3.7E-02	99.54%	12/27/01 12:57 p	2.03	RICHRC5080	
							Rec Limits:	70.	130.	0.0		G	ALP39	
atch: 1263500		Work Order: EKTQ71AE			Report DB ID: EKTQ71ES									
AM-241	5.58E+00		6.8E-01	1.5E+00	5.62E-02	pCi/g	19.49%	4.53E+00	3.8E-02	123.11%	12/27/01 12:58 p	2.0	RICHRC5080	
							Rec Limits:	70.	130.	0.2		G	ALP48	

Number of Results: 2

Comments:

000059

FORM II

Date: 02-Jan-02

LCS RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-506

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analy Method, Primary Detector
Batch: 1263506	Work Order: EKTRG1AC		Report DB ID: EKTRG1CS										
U-234	3.38E+00		3.6E-01	7.5E-01	2.54E-02	pCi/g	69.10%	3.29E+00	2.0E-02	102.71%	12/19/01 08:39 p	1.0	RICHRC5079
							Rec Limits:	70.	130.	0.0		G	ALP12
U-235	1.22E-01		6.8E-02	7.2E-02	2.54E-02	pCi/g	69.10%	1.50E-01	9.0E-04	81.07%	12/19/01 08:39 p	1.0	RICHRC5079
							Rec Limits:	70.	130.	-0.2		G	ALP12
U-238	3.13E+00		3.4E-01	7.0E-01	2.54E-02	pCi/g	69.10%	3.45E+00	2.1E-02	90.74%	12/19/01 08:39 p	1.0	RICHRC5079
							Rec Limits:	70.	130.	-0.1		G	ALP12

Number of Results: 3

Comments:

050000

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J11200000-508**

SDG: **W03587**
Report No. : **18500**

Matrix: **WATER**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
atch: 1263508	Work Order: EKTRM1AC		Report DB ID: EKTRM1CS										
OTAL-URANIUM	1.03E+01		0.0E+00	1.7E+00	9.78E-06	ug/g		1.01E+01	6.3E-02	101.77%	12/11/01 05:49 p	1.0	RICHRC5015
							Rec Limits:	70.	130.	0.0		ML	LIP3

Number of Results: 1

Comments:

000001

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J11200000-510**

SDG: **W03587**
Report No. : **18500**

Matrix: **SOIL**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector		
Itch: 1283510 Work Order: EKTRX1AC Report DB ID: EKTRX1CS															
TH-230	1.06E+00		1.7E-01	2.3E-01	1.90E-02	pCi/g	77.47%	1.15E+00	3.4E-02	92.33%	12/19/01 10:22 a	2.0	RICHRC5011		
Rec Limits:								70.	130.	-0.1				G	ALP120

Number of Results: 1

Comments:

00000000

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland
Lot-Sample No.: J11200000-511

SDG: W03587
Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analy Method, Primary Detector	
Batch: 1263511	Work Order: EKTR51AC		Report DB ID: EKTR51CS											
C-14	1.66E+01		7.2E-01	1.3E+00	7.88E-01	pCi/g	100.00%	1.81E+01	6.2E-01	91.58%	11/7/01 09:36 p	2.0	C14_LSC	
Rec Limits:								70.	130.	-0.1			G	LSC3

Number of Results: 1

Comments:

00000000

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-512

Report No. : 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
atch: 1263512	Work Order: EKTR61AC		Report DB ID: EKTR61CS										
NI-63	4.78E+02		8.5E+00	3.5E+01	6.25E+00	pCi/g	93.16%	5.05E+02	1.7E+01	94.65%	12/12/01 02:20 a	0.25	NI63LSC
							Rec Limits:	70.	130.	-0.1		G	LSC6

Number of Results: 1

Comments:

000064

UNCL

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J11200000-515**

SDG: **W03587**
Report No. : **18500**

Matrix: **SOIL**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC(MDA)	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
atch: 1263515	Work Order: EKTR71AC		Report DB ID: EKTR71CS										
TC-99	4.74E+01		9.0E-01	3.3E+00	7.45E-01	pCi/g	100.00%	6.78E+01	1.1E+00	69.97%	11/12/01 06:14 p	2.0	RICHRC5078
							Rec Limits:	70.	130.	-0.3		G	LSC3

Number of Results: 1

Comments:

000005

FORM II

Date: 02-Jan-02

LCS RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11200000-519

Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Alliquot Size	Analy Method, Primary Detector
Batch: 1283519	Work Order: EKT21AC		Report DB ID: EKT21CS										
H-3	1.64E+00		2.0E-01	3.0E-01	2.85E-01	pCi/g	100.00%	1.38E+00	4.8E-02	118.99%	11/7/01 09:46 p	10.0	906.0_H3_LCS
							Rec Limits:	70.	130.	0.2		G	LSC4

Number of Results: 1

Comments:

000000

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: **STL Richland**
Lot-Sample No.: **J11200000-520**

SDG: **W03587**
Report No. : **18500**

Matrix: **SOIL**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analy Method, Primary Detector
tch: 1263520	Work Order: EKT71AC		Report DB ID: EKT71CS										
STRONTIUM	1.12E+00		1.5E-01	3.3E-01	1.59E-01	pCi/g	89.90%	1.14E+00	1.4E-02	98.15%	12/28/01 07:21 p	6.0	SRTOT_SEP_PRECIP
							Rec Limits:	70.	130.	0.0		G	GPC32D

Number of Results: 1

Comments:

000007

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland
Lot-Sample No.: J11200000-524

SDG: W03587
Report No.: 18500

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector	
atch: 1283524	Work Order: EKTVC2AC		Report DB ID: EKTVC2CS											
NP-237	8.70E-01		1.5E-01	2.1E-01	1.80E-02	pCi/g	63.24%	9.02E-01	2.7E-02	96.47%	12/18/01 03:29 p	2.0	D3XW	
							Rec Limits:	70.	130.	0.0			G	ALP127

Number of Results: 1

Comments:

000009

000009

FORM II
LCS RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J11240000-

Report No. : 18500

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analy Method, Primary Detector
atch: 1267165	Work Order:												
HEXCHROME	9.53E-01			0.0E+00	2.00E-03	mg/L	N/A	1.00E+00		95.30%	9/27/01	100.0	EPA7196
							Rec Limits:			0.0		ML	

Number of Results: 1

Comments:

000070

NR

FORM II

Date: 02-Jan-02

MATRIX SPIKE RESULTS

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J1H300187-

Report No.: 18500

Matrix: SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Recovery	Expected	Exp Uncert	Analysis, Prep Date	Alliquot Size	Analy Method, Primary Detector
atch: 1242487 HEXCHROME	Work Order: EJTF11AR 3.39E+01 8.00E-02	RPD	2.0	Report DB ID: EJTF11RW 0.0E+00	8.00E-02	mg/kg	Orig Sa DB ID: 9EJTF110 N/A	84.97%	3.99E+01		9/9/01	2.591 G	EPA7196
atch: 1242487 HEXCHROME	Work Order: EJTF11AU 6.51E+02 8.00E-02	RPD	2.0	Report DB ID: EJTF11UW 0.0E+00	8.00E-02	mg/kg	Orig Sa DB ID: 9EJTF110 N/A	92.22%	7.06E+02		9/9/01	2.593 G	EPA7196

Number of Results: 2

Comments:

000071

0000

FORM II
MATRIX SPIKE RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J1H300187-1

Report No.: 18500

Matrix: SOIL

Parameter	SpikeResult, Orig Rst	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
atch: 1263508	Work Order: EJTF11A1		Report DB ID: EJTF111W		Orig Sa DB ID: 9EJTF110							
TOTAL-URANIUM	8.97E+00	0.0E+00	2.6E+00	9.78E-06	ug/g		92.67%	9.68E+00	6.1E-02	12/11/01 05:34 p	1.04	RICHRC5015
	2.02E+00	RER 5.2									ML	LIP3
atch: 1263512	Work Order: EJTF11A5		Report DB ID: EJTF115W		Orig Sa DB ID: 9EJTF110							
NI-63	4.51E+02	8.3E+00	3.3E+01	6.35E+00	pCi/g	83.86%	95.94%	4.70E+02	.6E+01	12/11/01 09:13 p	0.27	N163LSC
	-1.29E-01	RER 27.0									G	LSC6
atch: 1263515	Work Order: EJTF11A8		Report DB ID: EJTF118W		Orig Sa DB ID: 9EJTF110							
TC-99	1.57E+02	1.6E+00	9.8E+00	7.45E-01	pCi/g	100.00%	69.66%	2.26E+02	.8E+00	11/12/01 04:10 p	2.0	RICHRC5078
	-4.41E-01	RER 32.2									G	LSC3

Number of Results: 3

Comments:

000072

0057

FORM II
MATRIX SPIKE RESULTS

Date: 02-Jan-02

Lab Name: STL Richland

SDG: W03587

Lot-Sample No.: J1H300271-

Report No.: 18500

Matrix: SOIL

Parameter	SpikeResult, Orig Rat	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
atch: 1247459	Work Order: EJT9N1AD			Report DB ID: EJT9N1DW		Orig Sa DB ID: 9EJT9N10							
HEXCHROME	3.55E+01			0.0E+00	8.00E-02	mg/kg	N/A	89.20%	3.98E+01		9/9/01	2.836	EPA7196
	8.00E-02	RPD	2.0									G	
atch: 1247459	Work Order: EJT9N1AF			Report DB ID: EJT9N1FW		Orig Sa DB ID: 9EJT9N10							
HEXCHROME	6.61E+02			0.0E+00	8.00E-02	mg/kg	N/A	95.53%	6.92E+02		9/9/01	2.834	EPA7196
	8.00E-02	RPD	2.0									G	

Number of Results: 2

Comments:

000073

8500

Date: 12 March 2002
 To: Bechtel Hanford Inc. (technical representative)
 From: TechLaw, Inc.
 Project: 200-TW-1&2 - Soil Sampling
 Subject: Wet Chemistry - Data Package No. W03587-ST (SDG No. W03587)

INTRODUCTION

This memo presents the results of data validation on Data Package No. W03587-ST prepared by Severn Trent Services (ST). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B12C89-B	8/23/01	Soil	C	See note 1 & 2*
B12DC1-A	8/24/01	Soil	C	See note 1 & 2*
B12ML4-A	8/26/01	Soil	C	See note 1 & 2
B12ML5-A	8/27/01	Soil	C	See note 1 & 2
B12ML6-A	8/27/01	Soil	C	See note 1 & 2
B12ML7	8/28/01	Soil	C	See note 1 & 2

* - Laboratory reported the sample arrived without an intact custody seal.

1 - IC Anions - 300.0A (chloride, fluoride, nitrate, nitrite, phosphate, sulfate); cyanide - 9010A; total organic carbon (TOC) - 9060; ammonia - 350.1; pH - 9045A; nitrate/nitrite 353.1.

2 - Nitrate, nitrite and phosphate results in all samples were not validated and a J qualifier was applied per BHI instruction.

Data validation was conducted in accordance with the BHI validation statement of work and the 200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan, DOE/RL-2000-38, Rev. 0, February 2001. Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY OBJECTIVES

- **Holding Times/Preservation**

Analytical holding times are assessed to ascertain whether the holding time requirements have been met by the laboratory. The holding time requirements are as follows: 28 days for ammonia, nitrate/nitrite and IC anions (chloride, sulphate, fluoride); 14 days for cyanide and total organic carbon (TOC); 2 days for IC anions (nitrate, nitrite, phosphate); and immediate for pH.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

Due to the samples being received at the laboratory without proper preservation (cooler temperature 17°C instead of 4°C), the TOC, ammonia and cyanide results in samples B12C89-B and B12DC1-A were qualified as estimates and flagged "J".

Due to the samples being received at the laboratory without proper preservation (cooler temperature 18°C instead of 4°C), the TOC, ammonia and cyanide results in samples B12ML4-A, B12ML5-A and B12ML6-A were qualified as estimates and flagged "J".

Due to the holding time being exceeded by less than twice the limits, the following analytes were qualified as estimates and flagged "J": Cyanide in sample B12ML4-A and total organic carbon in all samples.

Due to the holding time being exceeded by greater than twice the limits, all pH results were qualified as estimates and flagged "J".

Holding times for non-validated results were as follows:

Phosphate - 14 days (B12C89-B), 12 days (B12DC1-A), 11 days (B12ML4-A), 10 days (B12ML5-A & B12ML6-A), 9 days (B12ML7).

Nitrate - 14 days (B12C89-B), 13 days (B12DC1-A), 11 days (B12ML4-A), 10 days (B12ML5-A & B12ML6-A), 9 days (B12ML7).

Nitrite - 18 days (B12C89-B), 12 days (B12DC1-A), 15 days (B12ML4-A), 14 days (B12ML5-A & B12ML6-A), 13 days (B12ML7).

Holding times were met for all other parameters and samples.

0000C2

- **Method Blanks**

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the target required quantitation limit (TRQL) to be acceptable.

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis, therefore, no field blank data was available for review.

- **Accuracy**

Matrix Spike

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must fall within the range of 75% to 125% (70-130% for TOC). Samples with a spike recovery of less than 30% and a sample value below the instrument detection limit (IDL) are rejected and flagged "UR". Samples with a spike recovery of 30% to 74% (30-69% for TOC) and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 125% or less than 75% (130% and 70% for TOC) and a sample result greater than the IDL are qualified "J". Finally, for samples with a spike recovery greater than 125% (130% for TOC) and a sample result less than the IDL, no qualification is required.

Due to matrix spike recoveries of 0%, all detected cyanide results were qualified as estimates and flagged "J" and all undetected cyanide results were rejected and flagged "R".

Due to a matrix spike recovery of 0%, all TOC results were qualified as estimates and flagged "J".

All other matrix spike recovery results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Laboratory duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Results must be within relative percent difference (RPD) limits of plus or minus 35%. If RPD values are out of specification and the sample concentration is greater than five times the target required quantitation limit (TRQL), all associated sample results are qualified as estimated and flagged "J". If RPD values are plus or minus two times the TRQL and the sample concentration is less than five times the TRQL, all associated sample results are qualified as estimated and flagged "J/UJ".

All laboratory duplicate results were within the required control limits.

Field Duplicate Samples

No field duplicate samples were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against 200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan, DOE/RL-2000-38, Rev. 0, February 2001 target required quantitation limits (TRQL) to ensure that laboratory detection levels meet the required criteria. The TRQL was exceeded for ammonia in sample B12C89-B and cyanide in sample B12ML4-A. Under the BHI statement of work, no qualification is required. All other reported laboratory detection levels met the analyte specific TRQL.

- **Completeness**

Data package No. W03587 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 98.4%.

MAJOR DEFICIENCIES

Due to matrix spike recoveries of 0%, all undetected (B12ML4-A) cyanide results were rejected and flagged "R". Rejected data is unusable and should not be recorded.

000004

MINOR DEFICIENCIES

Due to the holding time being exceeded by less than twice the limits, the following analytes were qualified as estimates and flagged "J": Cyanide in sample B12ML4-A and total organic carbon in all samples. Due to the holding time being exceeded by greater than twice the limits, all pH results were qualified as estimates and flagged "J". Due to the samples being received at the laboratory without proper preservation (cooler temperature 17°C instead of 4°C), the TOC, ammonia and cyanide results in samples B12C89-B and B12DC1-A were qualified as estimates and flagged "J". Due to the samples being received at the laboratory without proper preservation (cooler temperature 18°C instead of 4°C), the TOC, ammonia and cyanide results in samples B12ML4-A, B12ML5-A and B12ML6-A were qualified as estimates and flagged "J". Due to matrix spike recoveries of 0%, all detected cyanide results were qualified as estimates and flagged "J". Due to a matrix spike recovery of 0%, all TOC results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The TRQL was exceeded for ammonia in sample B12C89-B and cyanide in sample B12ML4-A. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-2000-38, Rev. 0, *200-TW-1 Scavenged Waste Group Operable Unit and 200-TW-2 Tank Waste Group Operable Unit RI/FS Work Plan*, February 2001.

Appendix 1
Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with WHC procedures are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. The associated concentration is an estimate, but the data are usable for decision-making purposes.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

000007

Appendix 2
Summary of Data Qualification

000008

DATA QUALIFICATION SUMMARY

SDG: W03587	REVIEWER: TLI	DATE: 3/12/02	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate Phosphate Nitrite	J	All	BHI instructions
pH Total organic carbon	J	All	Holding time
Cyanide	J	B12ML4-A	Holding time
TOC, ammonia, cyanide	J	All but B12ML7	Sample preservation
Cyanide	J/UR	All	MS recovery
TOC	J	All	MS percent recovery

000009

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000010

BECHTEL HANFORD, INC.

Client Sample ID: B12C89-B

General Chemistry

Lot-Sample #: F1H290206-002
 Date Sampled: 08/23/01
 % Moisture: 13

Work Order #: EJQ4N
 Date Received: 08/29/01

Matrix: SOLID

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	22.4 J	5.7	mg/kg	MCAWW 300.0A	09/06/01	1248337
				Dilution Factor: 1	MDL: 0.40	
pH (solid)	8.5 J		No Units	SW846 9045A	08/31/01	1243396
				Dilution Factor: 1	MDL:	
Chloride	7.4	2.3	mg/kg	MCAWW 300.0A	09/06/01	1248332
				Dilution Factor: 1	MDL: 0.11	
Fluoride	23.6	1.1	mg/kg	MCAWW 300.0A	09/06/01	1248333
				Dilution Factor: 1	MDL: 0.069	
Nitrate	22.9 J	0.23	mg/kg	MCAWW 300.0A	09/06/01	1248334
				Dilution Factor: 1	MDL: 0.023	
Nitrate/Nitrite as N 30.1		0.57	mg/kg	MCAWW 353.1	09/18/01	1262180
				Dilution Factor: 1	MDL: 0.041	
Nitrite	ND US	2.3	mg/kg	MCAWW 300.0A	09/10/01	1248335
				Dilution Factor: 10	MDL: 0.23	
Nitrogen, as Ammonia	ND UJ	2.9	mg/kg	MCAWW 350.1	09/08/01	1251215
				Dilution Factor: 1	MDL: 0.15	
Percent Moisture	13.0	0.10	%	MCAWW 160.3 MOD	08/31/01	1248248
				Dilution Factor: 1	MDL:	
Sulfate	40.0	5.7	mg/kg	MCAWW 300.0A	09/06/01	1248336
				Dilution Factor: 1	MDL: 0.33	
Total Cyanide	0.80 J	0.57	mg/kg	SW846 9010A	09/05/01	1249192
				Dilution Factor: 1	MDL: 0.14	
Total Organic Carbon 1590	J	28.7	mg/kg	SW846 9060	09/19/01	1262471
				Dilution Factor: 1	MDL: 17.8	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

Handwritten signature
 2/17/02

000012

BECHTEL HANFORD, INC.

Client Sample ID: B12DC1-A

General Chemistry

Lot-Sample #....: F1H290206-001 Work Order #....: EJQX8 Matrix.....: SOLID
 Date Sampled....: 08/24/01 Date Received...: 08/29/01
 % Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	28.2 J	5.6	mg/kg	MCAWW 300.0A	09/05/01	1248337
				Dilution Factor: 1	MDL.....: 0.39	
pH (solid)	8.6 J		No Units	SW846 9045A	08/31/01	1243396
				Dilution Factor: 1	MDL.....:	
Chloride	9.9	2.2	mg/kg	MCAWW 300.0A	09/05/01	1248332
				Dilution Factor: 1	MDL.....: 9.11	
Fluoride	38.8	1.1	mg/kg	MCAWW 300.0A	09/05/01	1248333
				Dilution Factor: 1	MDL.....: 0.067	
Nitrate	21.2 J	0.22	mg/kg	MCAWW 300.0A	09/06/01	1248334
				Dilution Factor: 1	MDL.....: 0.022	
Nitrate/Nitrite as N	ND	0.56	mg/kg	MCAWW 353.1	09/18/01	1262180
				Dilution Factor: 1	MDL.....: 0.040	
Nitrite	ND JK J	0.22	mg/kg	MCAWW 300.0A	09/05/01	1248335
				Dilution Factor: 1	MDL.....: 0.022	
Nitrogen, as Ammonia	0.61 J	2.8	mg/kg	MCAWW 350.1	09/08/01	1251215
				Dilution Factor: 1	MDL.....: 8.14	
Percent Moisture	10.0	0.10	%	MCAWW 160.3 MOD	08/31/01	1248248
				Dilution Factor: 1	MDL.....:	
Sulfate	48.2	5.6	mg/kg	MCAWW 300.0A	09/05/01	1248336
				Dilution Factor: 1	MDL.....: 0.32	
Total Cyanide	0.31 J	0.56	mg/kg	SW846 9010A	09/05/01	1249192
				Dilution Factor: 1	MDL.....: 0.14	
Total Organic Carbon	847 J	27.8	mg/kg	SW846 9060	09/19/01	1262471
				Dilution Factor: 1	MDL.....: 17.2	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

JK
2/17/02

000013

BECHTEL HANFORD, INC.

Client Sample ID: B12MLA-A

General Chemistry

Lot-Sample #: FLH310250-002 Work Order #: BJXPV Matrix: SOLID
 Date Sampled: 08/26/01 Date Received: 08/31/01
 % Moisture: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	66.5 J	6.1	mg/kg	MCAWW 300.0A	09/06/01	1248337
				Dilution Factor: 1 MDL.....: 0.43		
pH (solid)	8.6 J		No Units	SW846 9045A	09/04/01	1247385
				Dilution Factor: 1 MDL.....:		
Chloride	7.6	2.4	mg/kg	MCAWW 300.0A	09/06/01	1248332
				Dilution Factor: 1 MDL.....: 0.12		
Fluoride	38.6	1.2	mg/kg	MCAWW 300.0A	09/06/01	1248333
				Dilution Factor: 1 MDL.....: 0.073		
Nitrate	22.1 J	0.24	mg/kg	MCAWW 300.0A	09/06/01	1248334
				Dilution Factor: 1 MDL.....: 0.024		
Nitrate/Nitrite as N	24.9	0.61	mg/kg	MCAWW 353.1	09/18/01	1262180
				Dilution Factor: 1 MDL.....: 0.044		
Nitrite	ND US J	2.4	mg/kg	MCAWW 300.0A	09/10/01	1248335
				Dilution Factor: 10 MDL.....: 0.24		
Nitrogen, as Ammonia	1.7 B J	3.1	mg/kg	MCAWW 350.1	09/08/01	1251215
				Dilution Factor: 1 MDL.....: 0.16		
Percent Moisture	18.1	0.10	%	MCAWW 160.3 MOD	09/07/01	1255422
				Dilution Factor: 1 MDL.....:		
Sulfate	25.0	6.1	mg/kg	MCAWW 300.0A	09/06/01	1248336
				Dilution Factor: 1 MDL.....: 0.35		
Total Cyanide	ND US J	0.61	mg/kg	SW846 9010A	09/10/01	1254269
				Dilution Factor: 1 MDL.....: 0.15		
Total Organic Carbon	541 J	30.5	mg/kg	SW846 9060	09/19/01	1262471
				Dilution Factor: 1 MDL.....: 18.9		

NOTE(S):

RL Reporting Limit
 Results and reporting limits have been adjusted for dry weight.
 B Estimated result. Result is less than RL.

Handwritten signature
 2/12/02

000014

BECHTEL HANFORD, INC.

Client Sample ID: B12ML5-A

General Chemistry

Lot-Sample #: F1H310250-003 Work Order #: EJXP7 Matrix: SOLID
 Date Sampled: 08/27/01 Date Received: 08/31/01
 ‡ Moisture: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	30.4 J	5.9	mg/kg	MCAWW 300.0A	09/06/01	1248337
				Dilution Factor: 1 MDL.....: 0.41		
pH (solid)	9.6 J		No Units	SW846 9045A	09/04/01	1247385
				Dilution Factor: 1 MDL.....:		
Chloride	6.3	2.3	mg/kg	MCAWW 300.0A	09/06/01	1248332
				Dilution Factor: 1 MDL.....: 0.12		
Fluoride	70.0	1.2	mg/kg	MCAWW 300.0A	09/06/01	1248333
				Dilution Factor: 1 MDL.....: 0.070		
Nitrate	11.5 J	0.23	mg/kg	MCAWW 300.0A	09/06/01	1248334
				Dilution Factor: 1 MDL.....: 0.023		
Nitrate/Nitrite as N	14.8	0.59	mg/kg	MCAWW 353.1	09/18/01	1262180
				Dilution Factor: 1 MDL.....: 0.042		
Nitrite	ND JS JS	2.3	mg/kg	MCAWW 300.0A	09/10/01	1248335
				Dilution Factor: 10 MDL.....: 0.23		
Nitrogen, as Ammonia	1.8 J	2.9	mg/kg	MCAWW 350.1	09/08/01	1251215
				Dilution Factor: 1 MDL.....: 0.15		
Percent Moisture	14.7	0.10	‡	MCAWW 160.3 MOD	09/07/01	1255422
				Dilution Factor: 1 MDL.....:		
Sulfate	35.4	5.9	mg/kg	MCAWW 300.0A	09/06/01	1248336
				Dilution Factor: 1 MDL.....: 0.34		
Total Cyanide	0.56 J	0.59	mg/kg	SW846 9010A	09/10/01	1254269
				Dilution Factor: 1 MDL.....: 0.15		
Total Organic Carbon	668 J	29.3	mg/kg	SW846 9060	09/19/01	1262471
				Dilution Factor: 1 MDL.....: 18.2		

NOTE(S):

RL Reporting Limit
 Results and reporting limits have been adjusted for dry weight.
 B Estimated result. Result is less than RL.

Handwritten signature
 2/17/02

000015

BECHTEL HANFORD, INC.

Client Sample ID: B12ML6-A

General Chemistry

Lot-Sample #...: FLH310250-004 Work Order #...: EJXQC Matrix.....: SOLID
 Date Sampled...: 08/27/01 Date Received...: 08/31/01
 ‡ Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	105 J	5.6	mg/kg	MCAWW 300.0A	09/06/01	1248337
				Dilution Factor: 1 MDL.....: 0.39		
pH (solid)	9.5 J		No Units	SW846 9045A	09/04/01	1247385
				Dilution Factor: 1 MDL.....:		
Chloride	7.4	2.3	mg/kg	MCAWW 300.0A	09/05/01	1248332
				Dilution Factor: 1 MDL.....: 0.11		
Fluoride	205	1.1	mg/kg	MCAWW 300.0A	09/05/01	1248333
				Dilution Factor: 1 MDL.....: 0.068		
Nitrate	28.5 J	0.23	mg/kg	MCAWW 300.0A	09/06/01	1248334
				Dilution Factor: 1 MDL.....: 0.023		
Nitrate/Nitrite as N	33.4	0.56	mg/kg	MCAWW 353.1	09/18/01	1262180
				Dilution Factor: 1 MDL.....: 0.040		
Nitrite	ND 1.2 UJ	2.3	mg/kg	MCAWW 300.0A	09/10/01	1248335
				Dilution Factor: 10 MDL.....: 0.23		
Nitrogen, as Ammonia	5.3 J	2.8	mg/kg	MCAWW 350.1	09/08/01	1251215
				Dilution Factor: 1 MDL.....: 0.15		
Percent Moisture	11.2	0.10	‡	MCAWW 160.3 MOD	09/07/01	1255422
				Dilution Factor: 1 MDL.....:		
Sulfate	42.9	5.6	mg/kg	MCAWW 300.0A	09/05/01	1248336
				Dilution Factor: 1 MDL.....: 0.33		
Total Cyanide	0.38 J	0.56	mg/kg	SW846 9010A	09/10/01	1254269
				Dilution Factor: 1 MDL.....: 0.14		
Total Organic Carbon	771 J	28.2	mg/kg	SW846 9060	09/19/01	1262471
				Dilution Factor: 1 MDL.....: 17.5		

NOTE (S) :

RL Reporting Limit
 Results and reporting limits have been adjusted for dry weight.
 B Estimated result. Result is less than RL.

Handwritten signature
 2/17/02

000016

BECHTEL HANFORD, INC.

Client Sample ID: B12ML7

General Chemistry

Lot-Sample #....: F1H310250-001
 Date Sampled....: 08/28/01
 % Moisture.....: 13

Work Order #....: EJXPC
 Date Received...: 08/31/01

Matrix.....: SOLID

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	12.7 J	5.7	mg/kg	MCAWW 300.0A	09/06/01	1248337
				Dilution Factor: 1	MDL.....: 0.40	
pH (solid)	10.1 J		No Units	SW846 9045A	09/04/01	1247385
				Dilution Factor: 1	MDL.....:	
Chloride	5.4	2.3	mg/kg	MCAWW 300.0A	09/06/01	1248332
				Dilution Factor: 1	MDL.....: 0.11	
Fluoride	28.8	1.1	mg/kg	MCAWW 300.0A	09/06/01	1248333
				Dilution Factor: 1	MDL.....: 0.069	
Nitrate	5.4 J	0.23	mg/kg	MCAWW 300.0A	09/06/01	1248334
				Dilution Factor: 1	MDL.....: 0.023	
Nitrate/Nitrite as N	10.2	0.57	mg/kg	MCAWW 353.1	09/18/01	1262180
				Dilution Factor: 1	MDL.....: 0.041	
Nitrite	ND UT UT	2.3	mg/kg	MCAWW 300.0A	09/10/01	1248335
				Dilution Factor: 10	MDL.....: 0.23	
Nitrogen, as Ammonia	5.3 UT	2.9	mg/kg	MCAWW 350.1	09/08/01	1251215
				Dilution Factor: 1	MDL.....: 0.15	
Percent Moisture	13.0	0.10	%	MCAWW 160.3 MOD	09/07/01	1255422
				Dilution Factor: 1	MDL.....:	
Sulfate	20.4	5.7	mg/kg	MCAWW 300.0A	09/06/01	1248336
				Dilution Factor: 1	MDL.....: 0.33	
Total Cyanide	0.47 J	0.57	mg/kg	SW846 9010A	09/10/01	1254269
				Dilution Factor: 1	MDL.....: 0.14	
Total Organic Carbon	2680 J	28.7	mg/kg	SW846 9060	09/19/01	1262471
				Dilution Factor: 1	MDL.....: 17.8	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

JR
2/17/02

000017

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000018

CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

October 3, 2001

Attention: Joan Kessner

Project Number	:	43018
SAF	:	B01-058
SDG	:	W03587
Number of Samples	:	six
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	September 13, 2001

II. Introduction

Between September 29 and 31, 2001, six (6) "solid" samples were received by STL-St. Louis for chemical analysis. The samples were received at the St. Louis lab outside temperature criteria. See the COC and CUR forms for details of sample condition and temperature. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see the attached methods summary sheet

Deviation from Request: The metals were done using method 6010B in place of 6010A.

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.
DUP- Matrix Duplicate
MSD- Matrix Spike Duplicate.

000019

Bechtel Hanford Incorporated
October 3, 2001
Project Number: 43018
SDG: W03587
Page 2

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 MS recoveries for several metals were outside control limits. The spike data was flagged with an "N" qualifier. LCS recoveries met criteria.

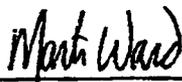
Wet Chemistry: A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Duplicate were analyzed with each preparation batch per the protocol for each analysis.

There was no recovery of the matrix spike for the Cyanide analysis of sample B12DC1-A. LCS recovery was acceptable. The spike data was flagged with an "N" qualifier.

There was no TOC MS recovery for sample B12DC1-A and the data is flagged with an "N" qualifier. The sample was spiked with 80 ul of a 600 ppm TOC standard. The spike was analyzed by itself with a reading of 640. The sample was weighted and the spike was added on top. When the sample plus the spike was burned, a very low result was given. It is believed that sample matrix was the interference.

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

Reviewed and approved:



Marti Ward
St. Louis Project Manager

000020

SDR # B02-084
Revision #: 0
Date Initiated: 3/20/02

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200-TW-1 & 2 - Soil
Task ID: 1
Sampling Event: 100 B/C Effluent Pipeline & Proximity Site Remediation Activities - Other Solid

Laboratory: Severn Trent Laboratory - St. Louis

Task Manager: M.E. Todd

Sampling Information:

Number of Samples: 6 soil 3/21/02
ID Numbers: B12C89-B, B12DC1-A, B12ML4-A, B12ML5-A, B12ML6-A, B12ML7
Matrix: Soil
Collection Date: 08/23/01 - 08/28/01

Issue Background:

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

Type: Clarification of Direction

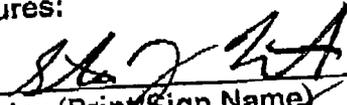
Description: Clarification of Direction For Validation of Short Holding-Time Analytes Performed by EPA Method 300.0

Disposition:

Description: The Sampling Authorization Form currently directs the data validator to not validate Nitrate results analyzed using EPA Method 300.0. This is inappropriate for the project and does not address other short hold-time analytes analyzed by Method 300.0 (Nitrite, Phosphate). Revised direction to the data validator shall be, "Due to the radiological characteristics of the samples, short hold-times for Nitrate, Nitrite, and Phosphate analysis via IC Method 300.0 cannot be met. Apply a 'J' qualifier to these results and note actual hold-time achieved in the validation case narrative."

Justification: Applied "J" qualifiers are much more appropriate for the Nitrate, Nitrite, and Phosphate results for soil samples from this project.

Approval Signatures:

S. J. Trent		<u>3/21/02</u>
Project Coordinator (Print/Sign Name)		Date
M.E. Todd		<u>3/21/02</u>
Task Manager (Print/Sign Name)		Date

THOMAS G. WATSON D. ANALYSIS REQUEST

Thomas G. Watson D. Company Contact: Todd, M.R. Telephone No. (509) 372-9631 Project Coordinator: TRENT, SJ

Project Designation: 200-TW-1 & 2 - Soil Sampling Sampling Location: B-7A/200 E Price Code: 8N Data Turnaround: 45 Days

Ice Chest No. VIKING Sn 08/98 050011 Field Logbook No. EL-1518-1 COA B20TW2A44C B20TW2694C Method of Shipment: Fed EX Air Quality: 45 Days

Shipped To: SERRERA OFFICE PROPERTY No. RSR 106563 01/23/01 Bill of Lading/Air Bill No. NA

POSSIBLE SAMPLE HAZARDS/REMARKS

Radiological Field Instrument Readings on bottles ranged from 15MRB/1.5MR2 to 3.0MR2/1.5MR2. Possible of (Mercury) of this sample. Sample originally sent to RCL for on site analysis. Package 2 of 2 represents custody transfer to RCL. The sample was picked up from RCP and returned for off-site analysis. A new COC was generated for appropriate off-site custody transfer. Page 1 of 2 represents custody transfer to offsite laboratory for directed analysis.

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
Type of Container	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	250mL	250mL	250mL	250mL
Chromium Hex. - 7196	Mercury - 7470 - (CV)	VDA B260A (TCL)	See Item (1) in Special Instructions.	See Item (2) in Special Instructions.	See Item (3) in Special Instructions.	See Item (4) in Special Instructions.	

Sample No.	Matrix *	Sample Date	Sample Time						
B12C89	SOIL	8-23-01	0130	X	X	X	X		

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Greg Thomas/Drop Thomas	0815 8/23/01	Foreman	0815 8/23/01
200 TW 1 & 2 site trailer	0815	R. Thoren	0815 8-28-01
R. Thoren	0815 8-28-01	FED EX	0850 8-29-01

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VDA - B260A (Add-On) (Trityl-phosphate), TTH-Dioxin Range - WTPSLD

(4) Gamma Spectroscopy (Gross-137, Cobalt-60, Barium-137, Barium-154, Barium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Phosphorus; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Niobium-93; Strontium-90,00

Samples stored in Ref. # 3728 at the 3728 Shipping Facility on 8/28/01. Collector not available to relinquish samples on 8/28/01 for shipment.

Matrix *

S-Soil
SS-Soil
SO-Soil
S-Storage
W-Wear
O-Other
A-Air
DL-Drum Liquid
TL-Tissue
W-Wipe
L-Liquid
V-Vegetation
X-Other

LABORATORY SECTION Received By: _____ Title: _____

FINAL SAMPLE DISPOSITION Disposed Method: _____ Disposed By: _____ Date/Time: 8-28-01

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-058-206	Page 1 of 2
Collector Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location B-7A/200 E	SAF No. B01-058	Air Quality <input type="checkbox"/>		45 Days	
Ice Chest No. VIKING SN 08/98 050011	Field Logbook No. EL-1518-1	COA B207W2A44C B207W26748 BT	Method of Shipment Fed EX		Bill of Lading/Air Bill No. N/A	
Shipped To Sovern Trent Incorporated ST. LOUIS	Offsite Property No. CSR 106563	8/24/01				

POSSIBLE SAMPLE HAZARDS/REMARKS Radiologic. Field Instrument Reading 35MRB 2 ml V on bottles. Possible α. Samples stored in Ref. # <u>Shetrone</u> at the 3728 Shipping Facility on <u>ERVA</u> . Collector not available to relinquish samples on <u>8/28/01</u> for shipment.	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	60mL	60mL	250mL	60mL	60mL	120mL	250mL	60mL
		Mercury - 7470 - (CV)	Chromium Hex. - 7196	See item (1) in Special Instructions.	VOA - 8200 (TCL)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan

Sample No.	Matrix *	Sample Date	Sample Time						
B12DC1	SOIL	8/24/01	0200	X			X		Tic to B12MKO

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <u>Guy Thomas/Mary Thomas</u>	Date/Time 8/24/01 0600	Received By/Stored In <u>200TW142 Site Trailer</u>	Date/Time 8/24/01 0600	(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (2) Semi-VOA - 820A (Add-On) (Triethyl phosphate); TPH-Diesel Range - WPHH-D BT 8/24/01 (3) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc) (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Barium-132, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Phosphorus; Isotopic Thorium (Thorium- 232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium- 99; Total Uranium; Tritium - H3; Isotopic Lithium				P=Soil SB=Soil/soil SO=Soil SI=Sludge W=Water O=Oil A=Air DB=Drum Solids DL=Drum Liquid T=Trash WS=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <u>200TW142 Site Trailer</u>	Date/Time 8/28/01 0415	Received By/Stored In <u>R. J. Thoren</u>	Date/Time 8/28/01 0415					
Relinquished By/Removed From <u>R. J. Thoren</u>	Date/Time 8/28/01 0450	Received By/Stored In <u>F. E. Day</u>	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In <u>SLUTTER</u>	Date/Time 8/29/01 0850					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-249		Page 1 of 1							
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days							
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>									
Ice Chest No. Viking S/N 08/98050012		Field Logbook No. EL-1518-1		COA B25TW2AKK B204TW2074C AT		Method of Shipment Fed EX									
Shipped To Seyern Trent Incorporated - St. Louis		Office Property No. R512 107053		8/27/01		Bill of Lading/Air Bill No. N/A									
POSSIBLE SAMPLE HAZARDS/REMARKS 1500MR } ON CONTACT 800CFM } 100MR } Samples stored in Ref. #121 at the 3728 Shipping Facility on 8/27/01. Collector not available to relinquish samples on 8/28/01 for shipment. 83001 SAMPLE ANALYSIS				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
				Type of Container	aG	aG	aG	aG	aG	aG	aG	aG			
				No. of Container(s)	1	1	1	1	1	1	1	1			
				Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL			
				See Item (1) in Special Instructions.	Mocroxy - 7470 - (CV)	Chromium Hex - 7196	See Item (2) in Special Instructions.	VOA - 8260A (TCL)	See Item (3) in Special Instructions.	See Item (4) in Special Instructions.	Activity Scan				
Sample No.	Matrix *	Sample Date	Sample Time												
B12ML4	SOIL	8/26/01	2345	X	X		X								Tie to B12MK1
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By/Removed From D. Watson		Date/Time 08/27/01 0805		Received By/Stored In REF TW12		Date/Time 08/27/01 0805		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 333.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VOA - 8270A (Add-On) (11800) (phosphate); 2271-Dioxin Range - WTPFD (4) Gamma Spectroscopy - (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226; Radium-228); Isotopic Deuterium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90,90 - Total Sp. Toxication 90 - Total Lithium; Tritium - H3; Isotopic Lithium				a=soil SB=Soilment SO=Solid LI=Liquid W=Water O=Oil A=Air D=Drum/Drum DL=Drum/Liquid T=Truss W=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From Ref TW12		Date/Time 8:30.01		Received By/Stored In R. Thoren		Date/Time 8:30.01									
Relinquished By/Removed From R. Thoren		Date/Time 8:30.01		Received By/Stored In FED EX		Date/Time									
Relinquished By/Removed From FED EX		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
LABORATORY SECTION	Received By [Signature]			Title			Date/Time 08-31-01/0920								
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time								

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-058-250		Page 1 of 1		
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>		45 Days	
Ice Chest No. VIKING SN 08 98 050012		Field Logbook No. EL-1518-1		COA B20TW2A44C B20TW2674G AT		Method of Shipment Fed EX			
Shipped To Sovern Trent Incorporated - ST. LOUIS		Offsite Property No. RSR107053		8/27/01		Bill of Lading/Air Bill No. WAT			

POSSIBLE SAMPLE HAZARDS/REMARKS FIELD RADIOLOGICAL INSTRUMENTS INDICATE 100 CPM } ON CONTACT 20mR/h } (<0.5mR/h) } Samples stored in Ref. # 101 at the 3728 Shipping Facility on 8/27/01. Collector not available to relinquish samples on 8/30/01 for shipment. WAT 8:30.01 8:30.01 8:30.01	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
		See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VDA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan		

Sample No.	Matrix *	Sample Date	Sample Time							
B12ML5	SOIL	8/27/01	0116	X	X		X			BIZ.MKZ

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From DISMANTLING	Date/Time 08/27/01 0645	Received By/Stored In REF. TW112	Date/Time 08/27/01 0645	(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VGA - 8260A (Add-on) (Tributyl phosphate); TPH-Direct Range - WTT112 (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-156); Gamma Spec - Add-on (Radium-226, Radium-228); Isotope Proliferation; Isotope Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90,90 - Total Sr; Technetium-99; Total Uranium, Thorium-232; Isotope Uranium				S=Soil SB=Soil/Sand SC=Soil SW=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Truss W=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From RALPH WILKINSON	Date/Time 08/30/01	Received By/Stored In R. Thorey	Date/Time 08/30/01						
Relinquished By/Removed From R. Thorey	Date/Time 08/30/01	Received By/Stored In FED EX	Date/Time 08/30/01						
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In	Date/Time						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						

LABORATORY SECTION	Received By [Signature]	Title	Date/Time 08-31-01/0920
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-251		Page 1 of 1	
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days	
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>			
Ice Chest No. VIKING S/N 08/980500		Field Logbook No. 7 EL-1518-1		COA B26TWZ A44C B00FW2674C HT		Method of Shipment Fed EX			
Shipped To Sovern Trent Incorporated - ST. Louis		Offsite Property No. RSP 107053		8/27/01		Bill of Lading/Air Bill No. WAA			

POSSIBLE SAMPLE HAZARDS/REMARKS FIELD RADIOLOGICAL INSTRUMENTS INDICATE 90CPM & 1MRS } ON CONTACT (0.5 MRY) Samples stored in Ref. # 13 at the 3728 Shipping Facility on 8/27/01 . Collector not available to relinquish samples on 8/30/01 for shipment. RT 8:30:01 SAMPLE ANALYSIS	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
	See Item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See Item (2) in Special Instructions.	VOA - 8260A (TCL)	See Item (3) in Special Instructions.	See Item (4) in Special Instructions.	Activity Scan			

Sample No.	Matrix *	Sample Date	Sample Time								
B12ML8	SOIL	8/27/01	0430	X	X		X				B12MK3

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From ES WATSON/RT	Date/Time 8/27/01 0745	Received By/Stored In REF-13	Date/Time 08/27/01 0745	(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VOA - 8270A (Add-On) (11-hourly phosphate); EPA-Diesel Range - WTTT+D (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Barium-132, Barium-154, Barium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium - Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90,90 - Total Sr; Technetium-99; Total Chloride; Tritium - H3; Isotopic Uranium				S=Soil SB=Soil/B SO=Soil SW=Water O=Oil A=Air DB=Drum/Bulk DL=Drum/Liquid T=Time W=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From Ref 13	Date/Time 8:30:01	Received By/Stored In R. Thoren	Date/Time 8:30:01						
Relinquished By/Removed From R. Thoren	Date/Time 8:30:01	Received By/Stored In FED EX	Date/Time						
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In	Date/Time						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						

LABORATORY SECTION	Received By [Signature]	Title	Date/Time 08/27/01/0920
FINAL SAMPLE DISPOSITION	Disposed Method	Disposed By	Date/Time

132007

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-252		Page 1 of 1					
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days					
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>		45 Days					
Ice Chest No. ERC-01-026		Field Logbook No. EL-1518-1		COA B20TW2A44C B20TW2674C JT		Method of Shipment Fed EX		Bill of Lading/Air Bill No. 42357954 6965					
Shipped To Severn Trent Incorporated - ST. Louis		Offsite Property No. A010288 8/28/01											
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Radiological. Field Instruments Reading Background Special Handling and/or Storage</i>			Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
			Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
			No. of Container(s)	1	1	1	1	1	1	1	1		
			Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
SAMPLE ANALYSIS			See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7440	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan			
											ME TA		
Sample No.	Matrix *	Sample Date	Sample Time										
B12ML7	SOIL	08/28/01	0100	X	X		X				B12ML4		
CHAIN OF POSSESSION			Sign/Print Names			SPECIAL INSTRUCTIONS			Matrix *				
Relinquished By/Removed From <i>Tom Watson</i>		Date/Time 08/28/01 0500		Received By/Stored In <i>Ref IB JTS</i>		Date/Time 08/28/01 0500		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VOA - 8270A (Add-On) (Fifty-ethyl-phosphate); PPH-D (Total Range) - WTPH-D (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Barium-132, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90; Total Sr; Technetium-99; Total Uranium; Tritium; H3; Isotopic Uranium			S-G-S SO-Solids SI-Sludge W-Water O-Oil A-Air DS-Dry Solid DL-Dry Liquid T-Tissue W2-Wipe L-Liquid V-Vegetation O-Other		
Relinquished By/Removed From <i>Ref IB JTS</i>		Date/Time 8/28/01 8:30:01		Received By/Stored In <i>R. J. Thoro</i>		Date/Time 8/28/01 8:30:01							
Relinquished By/Removed From <i>FED EX</i>		Date/Time 8/30/01		Received By/Stored In <i>FED EX</i>		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
LABORATORY SECTION		Received By <i>AK Powell</i>		Title		Samples stored in Ref. # <i>B</i> at the 3728 Shipping Facility on <i>8/28/01</i> . Collector not available to relinquish samples on <i>8/30/01</i> for shipment.			Date/Time <i>RT 8:30:01</i> 08-31-01 / 0920				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By			Date/Time						



Lot No.: FIH290206

Condition Upon Receipt Form
St. Louis Laboratory

W03587

Client: Flour Hanford
Quote No: 43018
Shipper/No: FedX 4476 546126

Date: 8.29.01 Time: 0850
Initiated by: SW
COC/RFA Numbers: B01-058-206, 166, 238

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

- | | | | |
|---|---|---|---|
| 1. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received in undamaged condition. | 5. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample volume sufficient for analysis. |
| 2. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received within $4C \pm 2C^*$
Record temperature: <u>17</u> | 6. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received with Chain of Custody. |
| 3. <input type="radio"/> Y <input type="radio"/> N | Sample received with proper pH**. <u>Soil N/A</u> | 7. <input checked="" type="radio"/> Y <input type="radio"/> N | Chain of Custody matches sample IDs on containers. |
| 4. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received in proper containers. | 8. <input checked="" type="radio"/> Y <input type="radio"/> N | Custody seal received intact and tamper evident on cooler. |
| | | 9. <input checked="" type="radio"/> Y <input type="radio"/> N | Custody seal received intact and tamper evident on bottles. |

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes: Blue ice melted - not enough to cool samples.
All jars contaminated on outside with radioactive soil granules. We used Contrad solution to clean the outside of the jars. All jars were swiped as well as the inside of the cooler. After swiping found no contamination.
Also, shipping container is expired and should not be used. Mfg. date is 1998

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 8.29.01

Project Management Review: [Signature] Date: 8.29.01

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM



Lot No.: FIH31025C

Condition Upon Receipt Form
St. Louis Laboratory

Client: Hanford

Date: 083101 Time: 0920

Quote No: 43018

Initiated by: [Signature]

Shipper/No: 4476546152 Fed Ex

COC/RFA Numbers: B01-058-249

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation): -250
-251

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in undamaged condition.	5. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample volume sufficient for analysis.
2. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received within 4°C ± 2°C Record temperature: <u>18°</u>	6. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody.
3. <input type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/> N/A	Sample received with proper pH**.	7. <input checked="" type="radio"/> Y <input type="radio"/> N	Chain of Custody matches sample IDs on containers.
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers.	8. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on cooler.
		9. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes:

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 083101

Project Management Review: [Signature] Date: 9.4.01

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR
INITIALS AND THE DATE NEXT TO THAT ITEM

Appendix 5
Data Validation Supporting Documentation

000070

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	Z00TW 1+2		DATA PACKAGE: W03587		
VALIDATOR:	TL	LAB:	ST	DATE: 2/10/02	
CASE:	SDG: W03587				
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO ₃ /NO ₂
Sulfate	TDS	TKN	Phosphate	eyenel	
SAMPLES/MATRIX					
B12C99-B B12DC1-A B12ML4-A B12ML5-A					
B12ML6-A B12ML7					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No **N/A**

Comments: _____

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? Yes No **N/A**
 Initial calibrations acceptable? Yes No **N/A**
 ICV and CCV checks performed on all instruments? Yes No **N/A**
 ICV and CCV checks acceptable? Yes No **N/A**
 Standards traceable? Yes No **N/A**
 Standards expired? Yes No **N/A**
 Calculation check acceptable? Yes No **N/A**

Comments: _____

Handwritten signature/initials

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) Yes No N/A

ICB and CCB results acceptable? (Levels D, E) Yes No N/A

Laboratory blanks analyzed? Yes No N/A

Laboratory blank results acceptable? Yes No N/A

Field blanks analyzed? (Levels C, D, E) Yes No N/A

Field blank results acceptable? (Levels C, D, E) Yes No N/A

Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: _____

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? Yes No N/A

Spike recoveries acceptable? Yes No N/A

Sike standards NIST traceable? (Levels D, E) Yes No N/A

Spike standards expired? (Levels D, E) Yes No N/A

LCS/BSS samples analyzed? Yes No N/A

LCS/BSS results acceptable? Yes No N/A

Standards traceable? (Levels D, E) Yes No N/A

Standards expired? (Levels D, E) Yes No N/A

Transcription/calculation errors? (Levels D, E) Yes No N/A

Performance audit sample(s) analyzed? Yes No N/A

Performance audit sample results acceptable? Yes No N/A

Comments: MS cyanide 0.90
POC

Aug 31
SEP 30

Holdin time

	Aug	SEP	
89	8		
CI	7		
L4	5	cyanide (13 days) - J	
L5	4		
L6	4		
L7	3		

(Am N/nit CI flor sulf) ok

L4 cyanide (13 days)

Toc	CI (26 days)	89 (27)	L7 (22)	L4 (24)	L5 (23)	L6 (23)
nitrate	CI (13 days)	89 (14)	L7 (9)	L4 (11)	L5 (10)	L6 (10)
nitrite	CI (17)	89 (18)	L7 (13)	L4 (15)	L5 (14)	L6 (14)
phosphor	CI (12)	89 (14)	L7 (9)	L4 (11)	L5 (10)	L6 (10)

pH all over

phosphat J all

nitrate J all

nitrite OR all

pH J all

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

5. PRECISION (Levels C, D, and E)

- Duplicate RPD values acceptable? Yes No N/A
- Duplicate results acceptable? Yes No N/A
- MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
- MS/MSD standards expired? (Levels D, E) Yes No N/A
- Field duplicate RPD values acceptable? Yes No N/A
- Field split RPD values acceptable? Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: dup ammonic 38% -ok

6. HOLDING TIMES (all levels)

- Samples properly preserved? Yes No N/A
- Sample holding times acceptable? Yes No N/A

Comments: T.OE ammonic cyanide - all bus
M.L.T (17+18' at receipt) J all

See page 33A

000003

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? Yes No N/A
Results supported in the raw data? (Levels D, E)..... Yes No N/A
Samples properly prepared? (Levels D, E)..... Yes No N/A
Detection limits meet RDL? Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: ammonia 89
Cyanide 64

000034

Appendix 6

Additional Documentation Requested by Client

000025

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F1H290206
Date Sampled...: 08/24/01

Date Received...: 08/29/01

Matrix.....: SOLID

Percent Moisture: 0.0

PARAMETER	SAMPLE SPIKE		MEASURED		PERCENT	METHOD	PREPARATION-	PREP
	AMOUNT	AMT	AMOUNT	UNITS	RECOVERY		ANALYSIS DATE	BATCH #
ortho-Phosphate	28.2	206	232	mg/kg	99	MCAWW 300.0A	09/06/01	1248337
			Work Order #...: EJQX81AV			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 46.3					
Chloride	9.9	103	107	mg/kg	94	MCAWW 300.0A	09/05/01	1248332
			Work Order #...: EJQX81EL			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					
Fluoride	38.8	103	137	mg/kg	95	MCAWW 300.0A	09/06/01	1248333
			Work Order #...: EJQX81AG			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					
Nitrate	21.2	20.6	41.5	mg/kg	99	MCAWW 300.0A	09/06/01	1248334
			Work Order #...: EJQX81AK			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					
Nitrate/Nitrite as N	ND	27.8	33.8	mg/kg	122	MCAWW 353.1	09/18/01	1262180
			Work Order #...: EJQX81A6			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					
Nitrite	ND	5.15	5.17	mg/kg	100	MCAWW 300.0A	09/06/01	1248335
			Work Order #...: EJQX81AN			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					
Nitrite	ND	47.8	44.1	mg/kg	92	MCAWW 300.0A	09/10/01	1248335
			Work Order #...: EJQ4N1AX			MS Lot-Sample #: F1H290206-002		
			Dilution Factor: 1					
Nitrogen, as Ammonia	0.61	34.3	37.1	mg/kg	106	MCAWW 350.1	09/08/01	1251215
			Work Order #...: EJQX81A3			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					
Sulfate	48.2	206	241	mg/kg	93	MCAWW 300.0A	09/06/01	1248336
			Work Order #...: EJQX81AR			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 46.3					
Total Cyanide	0.31	5.56		mg/kg	0	SW846 9010A	09/05/01	1249192
			Work Order #...: EJQX81A9			MS Lot-Sample #: F1H290206-001		
			Dilution Factor: 1					

(Continued on next page)

000076

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #....: F1H290206

Matrix.....: SOLID

Date Sampled....: 08/24/01

Date Received...: 08/29/01

PARAMETER	SAMPLE SPIKE		MEASURED		PERCENT	METHOD	PREPARATION-	PREP
	AMOUNT	AMT	AMOUNT	UNITS	RECOVERY		ANALYSIS DATE	BATCH #
Total Organic Carbon			Work Order #....: EJOX81CG				MS Lot-Sample #: F1H290206-001	
	847	667	607 N	mg/kg	0	SW846 9060	09/19/01	1262471
	Dilution Factor: 1							

NOTE(S):

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

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

000037

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #....: F1H290206 Work Order #....: EJQX8-SMP Matrix.....: SOLID
 Date Sampled....: 08/24/01 Date Received...: 08/29/01
 * Moisture.....: 10

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	9.9	9.6	mg/kg	3.4	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 300.0A	09/05/01	1248332
						Dilution Factor: 1		
Fluoride	38.8	37.7	mg/kg	3.1	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 300.0A	09/05/01	1248333
						Dilution Factor: 1		
Nitrate	21.2	23.7	mg/kg	11	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 300.0A	09/06/01	1248334
						Dilution Factor: 1		
Nitrite	ND	ND	mg/kg	0	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 300.0A	09/05/01	1248335
						Dilution Factor: 1		
Sulfate	48.2	48.8	mg/kg	1.2	(0-20)	SD Lot-Sample #: F1H290206-001 MCAWW 300.0A	09/05/01	1248336
						Dilution Factor: 1		
Phosphate as P, Ortho	28.2	31.5	mg/kg	11	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 300.0A	09/05/01	1248337
						Dilution Factor: 1		
Nitrogen, as Ammonia	0.61 B	0.42	mg/kg	38	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 350.1	09/08/01	1251215
						Dilution Factor: 1		
Nitrate/Nitrite as N	ND	ND	mg/kg	0	(0-35)	SD Lot-Sample #: F1H290206-001 MCAWW 353.1	09/18/01	1262180
						Dilution Factor: 1		
Total Cyanide	0.31 B	ND	mg/kg	200	(0-35)	SD Lot-Sample #: F1H290206-001 SW846 9010A	09/05/01	1249192
						Dilution Factor: 1		
pH (solid)	8.6	8.5	No Units	1.5	(0-20)	SD Lot-Sample #: F1H290206-001 SW846 9045A	08/31/01	1243396
						Dilution Factor: 1		
Total Organic Carbon	847	825	mg/kg	2.7	(0-30)	SD Lot-Sample #: F1H290206-001 SW846 9060	09/19/01	1262471
						Dilution Factor: 1		

000038

(Continued on next page)

METHOD BLANK REPORT

General Chemistry

Client Lot #...: FIH310250

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	ND	Work Order #: EJ3ER1AA 2.0	mg/kg	MB Lot-Sample #: F1I050000-332 MCAWW 300.0A	09/05/01	1248332
		Dilution Factor: 1				
Fluoride	ND	Work Order #: EJ3EV1AA 1.0	mg/kg	MB Lot-Sample #: F1I050000-333 MCAWW 300.0A	09/05/01	1248333
		Dilution Factor: 1				
Nitrate	ND	Work Order #: EJ3E31AA 0.20	mg/kg	MB Lot-Sample #: F1I050000-334 MCAWW 300.0A	09/06/01	1248334
		Dilution Factor: 1				
Nitrate/Nitrite as N	ND	Work Order #: EKNP61AA 0.50	mg/kg	MB Lot-Sample #: F1I190000-180 MCAWW 353.1	09/18/01	1262180
		Dilution Factor: 1				
Nitrite	ND	Work Order #: EJ3E51AA 0.20	mg/kg	MB Lot-Sample #: F1I050000-335 MCAWW 300.0A	09/05/01	1248335
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: EJ8791AA 2.5	mg/kg	MB Lot-Sample #: F1I080000-215 MCAWW 350.1	09/08/01	1251215
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: EJ3E91AA 5.0	mg/kg	MB Lot-Sample #: F1I050000-337 MCAWW 300.0A	09/05/01	1248337
		Dilution Factor: 1				
Sulfate	ND	Work Order #: EJ3E81AA 5.0	mg/kg	MB Lot-Sample #: F1I050000-336 MCAWW 300.0A	09/05/01	1248336
		Dilution Factor: 1				
Total Cyanide	ND	Work Order #: EKA481AA 0.50	mg/kg	MB Lot-Sample #: F1I110000-269 SW846 9010A	09/10/01	1254269
		Dilution Factor: 1				
Total Organic Carbon	ND	Work Order #: EKRTN1AA 25.0	mg/kg	MB Lot-Sample #: F1I190000-471 SW846 9060	09/19/01	1262471
		Dilution Factor: 1				

NOTE (S):

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

000039

METHOD BLANK REPORT

General Chemistry

Client Lot #....: F1H290206

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Chloride	ND	Work Order #: EJ3ER1AA 2.0	mg/kg	MB Lot-Sample #: F1I050000-332 MCAWW 300.0A	F1I050000-332 09/05/01	1248332
		Dilution Factor: 1				
Fluoride	ND	Work Order #: EJ3EV1AA 1.0	mg/kg	MB Lot-Sample #: F1I050000-333 MCAWW 300.0A	F1I050000-333 09/05/01	1248333
		Dilution Factor: 1				
Nitrate	ND	Work Order #: EJ3E31AA 0.20	mg/kg	MB Lot-Sample #: F1I050000-334 MCAWW 300.0A	F1I050000-334 09/06/01	1248334
		Dilution Factor: 1				
Nitrate/Nitrite as N	ND	Work Order #: EKNP61AA 0.50	mg/kg	MB Lot-Sample #: F1I190000-180 MCAWW 353.1	F1I190000-180 09/18/01	1262180
		Dilution Factor: 1				
Nitrite	ND	Work Order #: EJ3E51AA 0.20	mg/kg	MB Lot-Sample #: F1I050000-335 MCAWW 300.0A	F1I050000-335 09/05/01	1248335
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: EJ8791AA 2.5	mg/kg	MB Lot-Sample #: F1I080000-215 MCAWW 350.1	F1I080000-215 09/08/01	1251215
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: EJ3E91AA 5.0	mg/kg	MB Lot-Sample #: F1I050000-337 MCAWW 300.0A	F1I050000-337 09/05/01	1248337
		Dilution Factor: 1				
Sulfate	ND	Work Order #: EJ3E81AA 5.0	mg/kg	MB Lot-Sample #: F1I050000-336 MCAWW 300.0A	F1I050000-336 09/05/01	1248336
		Dilution Factor: 1				
Total Cyanide	ND	Work Order #: EJ4D51AA 0.50	mg/kg	MB Lot-Sample #: F1I060000-192 SW846 9010A	F1I060000-192 09/05/01	1249192
		Dilution Factor: 1				
Total Organic Carbon	ND	Work Order #: EKRTN1AA 25.0	mg/kg	MB Lot-Sample #: F1I190000-471 SW846 9060	F1I190000-471 09/19/01	1262471
		Dilution Factor: 1				

NOTE (S):

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

000040



STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel 314 298 8566
Fax 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. 200-TW-1&2SOIL

B01-058

Lot #: F2B160152

SDG #: W03587A

Joan Kessner

Bechtel Hanford, Inc.
3190 George Washington Way
Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

A handwritten signature in cursive script that reads "Marti Ward".

MARTI WARD
Project Manager

February 22, 2002





CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated
 3350 George Washington Way
 Richland, Washington 99352

February 22, 2002

Attention: Joan Kessner

Project Number	:	43018
SAF	:	B01-058
SDG	:	W03587A
Number of Samples	:	six
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	September 13, 2001

II. Introduction

Between September 29 and 31, 2001, six (6) "solid" samples were received by STL--St. Louis for chemical analysis. The samples were received at the St. Louis lab outside temperature criteria. See the COC and CUR forms for details of sample condition and temperature. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids. On February 14, 2002, the client requested additional analysis. This report contains the results for the additional analysis.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see the attached methods summary sheet

Deviation from Request: The metals were done using method 6010B in place of 6010A.

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.
- DUP- Matrix Duplicate
- MSD- Matrix Spike Duplicate.



Bechtel Hanford Incorporated
February 22, 2002
Project Number: 43018
SDG: W03587A
Page 2

STL St. Louis

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.

TCLP Metals:

The TCLP metals analysis was requested after the TCLP leach holding time had expired.

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 MS/MSD were not run on a sample in this SDG. The data for the "batch" QC is included at the back of the data report. Recoveries were in control.

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

Reviewed and approved:

A handwritten signature in cursive script that reads "Marti Ward".

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F2B160152

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
ET8X2	001	B12C89-B	08/23/01	
ET9DX	002	B12DC1-A	08/24/01	
ET9D2	003	B12ML1 <i>H-A NAC 2/27/02</i>	08/26/01	

NOTE (S) :

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

METHODS SUMMARY

F2B160152

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010

References:

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

L St. Louis

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 2/18/02
Time: 9:34:32
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC"D: 60G,250G
STORAGE LOC: T15
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B12C89-B
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-2B160152-001
WORK ORDER: ET8X2
RECEIVING DATE: 2/14/02
SAMPLING DATE: 8/23/01
ANALYTICAL DUE DATE: 2/22/02N
REPORT DUE DATE: 2/25/02
PRIORITY: 08
SAMPLING TIME:
RECEIVING TIME: 16:00

SDG# : W03587A

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace)	06	2/18/02	2/19/02	8/18/02
TCLP(1311) -> METALS, TOTAL				
MT6010TP CR,PB				
(A-34-QM-01) ET8X2 Protocol: A QC Program: STANDARD TEST SET				

St. Louis

SL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 2/18/02
Time: 9:34:32
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 2X60G, 120G, 250G
STORAGE LOC: T15
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
JSAF MATRIX:
SAMPLE ID: B12DC1-A
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-2B160152-002
WORK ORDER: ET9DX
RECEIVING DATE: 2/14/02
SAMPLING DATE: 8/24/01
ANALYTICAL DUE DATE: 2/22/02N
REPORT DUE DATE: 2/25/02
PRIORITY: 08
SAMPLING TIME:
RECEIVING TIME: 16:00

SDG# : W03587A

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace)	06	2/18/02	2/20/02	8/19/02
TCLP(1311) -> METALS, TOTAL				
MT6010TP PB				
(A-34-QM-01) ET9DX	Protocol: A	QC Program:	STANDARD TEST SET	

L St. Louis

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 2/18/02
Time: 9:34:32
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC"D: 60G,120G
STORAGE LOC: T15
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B12ML1 *HA NAC 2/27/02*
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-2B160152-003
WORK ORDER: ET9D2
RECEIVING DATE: 2/14/02
SAMPLING DATE: 8/26/01
ANALYTICAL DUE DATE: 2/22/02N
REPORT DUE DATE: 2/25/02
PRIORITY: 08
SAMPLING TIME:
RECEIVING TIME: 16:00

SDG# : W03587A

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace) TCLP(1311) -> METALS, TOTAL MT6010TP PB (A-34-QM-01)	06	2/18/02	2/22/02	8/21/02
ET9D2	Protocol: A	QC Program:	STANDARD TEST SET	

CORRECTION REANALYSIS & SUB-SAMPLE FORM

Request Initiated by: mward
Request Date: 2/14/02
Quote number: 43018

Request is for: return to client
 Re-analysis
 Sub-sample
 additional analysis

Old Lot No.: F1H290206-001,002 F1H310250-002

SOG W03587A
Quote 43018
SAF B01-058

Sample ID	Shelf Location	Analysis
<i>206-2</i> B12C89-B <i>8.23</i>	bins <i>60G, 250</i>	TCLP Pb; TCLP Cr
<i>206-256</i> B12DC1-A <i>8.24</i>	bins <i>2x60G, 120G, 250G</i>	TCLP Pb
<i>20-002</i> B12ML4A <i>8.26</i>	bins <i>60G, 120G</i>	TCLP Pb
B12ML4A <i>8.26</i>		

Receipt Date for new login: 02/14/02

Due Date for new login: 02/25/02

(may exclude the address portion if including Attachment 7 of SOP RPP0051)

Shipping Address: _____

Contact person: _____
Phone number: _____

Signature _____

Completed by: *EW* Date: 02.16.02

New Login Lot No. F2B160152 (place copy of this form in old file)
Initial that Containers were Re-labeled *EW* (place below Lot no. of old label)

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 2X60G,120G,250G
STORAGE LOC: S126
LOT COMMENTS: Metals: CRDL standard required +/-25%

QUOTE/SAR #: 43018
LAB ID: F-1H290206-001
WORK ORDER: EJQX8
RECEIVING DATE: 8/29/01
SAMPLING DATE: 8/24/01
ANALYTICAL DUE DATE: 9/28/01N
REPORT DUE DATE: 10/12/01
PRIORITY: 30
SAMPLING TIME: 2:00
RECEIVING TIME: 8:50

SAMPLE ID: B12DC1-A *Days 2/28/02*
QC PACKAGE: Report

SDG# :

SAMPLE COMMENTS:

RUN A DUPLICATE ON ALL WET CHEM.

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EJQX8-1-AA Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	12/01/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJQX8-1-AC Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	12/01/01	12/29/01
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJQX8-1-AF Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	12/01/01	12/29/01
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJQX8-1-AJ Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	12/01/01	12/03/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJQX8-1-AM Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	12/01/01	12/03/01
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJQX8-1-AQ Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	12/01/01	12/29/01
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJQX8-1-AU Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	12/01/01	12/03/01
Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S AG,AL,CA,CD,CR,CU,FE,MG,MN,MO,NI,PB,VX,ZN (A-46-QM-01) EJQX8 Protocol: B QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	2/20/02
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils	06	8/29/01	0/00/00	2/20/02

St. Louis

M6010_S BI,KX,NA (A-46-QO-01) EJQX8	Protocol: B	QC Program: STANDARD TEST SET			
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-OG-01) EJQX8	06	8/29/01	9/21/01	9/21/01	
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJQX8-1-A2	Protocol: A	QC Program: STANDARD TEST SET			
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EJQX8-1-A5	06	8/29/01	9/21/01	9/21/01	
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJQX8-1-A8	06	8/29/01	0/00/00	9/07/01	
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EJQX8-1-CC	Protocol: A	QC Program: STANDARD TEST SET			
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJQX8-1-CF	06	8/29/01	0/00/00	9/21/01	

TL St. Louis

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 8/29/01
Time: 13:57:30
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058

QUOTE/SAR #: 43018
LAB ID: F-1H290206-001-D
WORK ORDER: EJQX8 MSD
RECEIVING DATE: 8/29/01
SAMPLING DATE: 8/24/01
ANALYTICAL DUE DATE: 9/28/01N
REPORT DUE DATE: 10/12/01
PRIORITY: 30

AMOUNT REC'D: 2X60G,120G,250G
STORAGE LOC: S126

LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID

SAMPLING TIME: 2:00
RECEIVING TIME: 8:50

SAMPLE ID: B12DC1-A *Duguo 2/28/02*

QC PACKAGE: Report

SDG# :

SAMPLE COMMENTS:

RUN A DUPLICATE ON ALL WET CHEM.

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK	REQUEST	EXTRACTION	ANALYSIS
	LOC	DATE	EXP DATE	EXP DATE
Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S AG,AL,CA,CD,CR,CU,FE,MG,MN,MO,NI,PB,VX,ZN (A-46-QM-01) EJQX8 Protocol: B QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	2/20/02
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S BI,KX,NA (A-46-QO-01) EJQX8 Protocol: B QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	2/20/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EJQX8 Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	9/21/01	9/21/01

St. Louis

11

SL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 8/29/01
Time: 13:57:30
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058

QUOTE/SAR #: 43018
LAB ID: F-1H290206-001-S
WORK ORDER: EJQX8 MS
RECEIVING DATE: 8/29/01
SAMPLING DATE: 8/24/01
ANALYTICAL DUE DATE: 9/28/01N
REPORT DUE DATE: 10/12/01
PRIORITY: 30
SAMPLING TIME: 2:00
RECEIVING TIME: 8:50

AMOUNT REC'D: 2X60G,120G,250G
STORAGE LOC: S126
LOT COMMENTS: Metals: CRDL standard required +/-25%

MATRIX: SOLID
SAMPLE ID: B12DC1-A *D. Ayres 2/28/02*

QC PACKAGE: Report

SAMPLE COMMENTS:

RUN A DUPLICATE ON ALL WET CHEM.

Beginning Depth: .00 Ending Depth: .00

SDG# :

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJQX8-1-AD Protocol: A	06	8/29/01	12/01/01	12/29/01
QC Program: STANDARD TEST SET				
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJQX8-1-AG Protocol: A	06	8/29/01	12/01/01	12/29/01
QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJQX8-1-AK Protocol: A	06	8/29/01	12/01/01	12/03/01
QC Program: STANDARD TEST SET				
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJQX8-1-AN Protocol: A	06	8/29/01	12/01/01	12/03/01
QC Program: STANDARD TEST SET				
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJQX8-1-AR Protocol: A	06	8/29/01	12/01/01	12/29/01
QC Program: STANDARD TEST SET				
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJQX8-1-AV Protocol: A	06	8/29/01	12/01/01	12/03/01
QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S AG,AL,CA,CD,CR,CU,FE,MG,MN,MO,NI,PB,VX,ZN (A-46-QM-01) EJQX8 Protocol: B	06	8/29/01	0/00/00	2/20/02
QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S BI,KX,NA (A-46-QO-01) EJQX8 Protocol: B	06	8/29/01	0/00/00	2/20/02
QC Program: STANDARD TEST SET				

St. Louis

SL20300
Page 2

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 8/29/01
Time: 13:57:30
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058

QUOTE/SAR #: 43018
LAB ID: F-1H290206-001-S
WORK ORDER: EJQX8 MS
RECEIVING DATE: 8/29/01
SAMPLING DATE: 8/24/01
ANALYTICAL DUE DATE: 9/28/01N
REPORT DUE DATE: 10/12/01
PRIORITY: 30
SAMPLING TIME: 2:00
RECEIVING TIME: 8:50

AMOUNT REC'D: 2X60G,120G,250G
STORAGE LOC: S126

NOT COMMENTS: Metals: CRDL standard required +/-25%

MATRIX: SOLID
SAMPLE ID: B12DC1-A *Duques 2/28/02*
QC PACKAGE: Report

SAMPLE COMMENTS:
RUN A DUPLICATE ON ALL WET CHEM.

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EJQX8 Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	9/21/01	9/21/01
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJQX8-1-A3 Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	9/21/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EJQX8-1-A6 Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	9/21/01	9/21/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJQX8-1-A9 Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	9/07/01
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJQX8-1-CG Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	9/21/01

St. Louis

SL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 8/29/01
Time: 13:57:30
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S126
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12C89-3 *Dupes 2/28/02*
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-1H290206-002
WORK ORDER: EJJQ4N
RECEIVING DATE: 8/29/01
SAMPLING DATE: 8/23/01
ANALYTICAL DUE DATE: 9/28/01N
REPORT DUE DATE: 10/12/01
PRIORITY: 30
SAMPLING TIME: 1:30
RECEIVING TIME: 8:50

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EJJQ4N-1-AA Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	11/30/01
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EJJQ4N Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	2/19/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-OG-01) EJJQ4N Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	9/20/01	9/20/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJJQ4N-1-AJ Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	11/30/01	12/28/01
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJJQ4N-1-AK Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	11/30/01	12/28/01
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJJQ4N-1-AL Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	11/30/01	12/02/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJJQ4N-1-AM Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	11/30/01	12/02/01
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJJQ4N-1-AN Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	11/30/01	12/28/01

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S126
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12C89-B *Notes 2/28/02*
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-1H290206-002
WORK ORDER: EJQ4N
RECEIVING DATE: 8/29/01
SAMPLING DATE: 8/23/01
ANALYTICAL DUE DATE: 9/28/01N
REPORT DUE DATE: 10/12/01
PRIORITY: 30
SAMPLING TIME: 1:30
RECEIVING TIME: 8:50

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJQ4N-1-AP Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	11/30/01	12/02/01
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJQ4N-1-AR Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	9/20/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EJQ4N-1-AT Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	9/20/01	9/20/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJQ4N-1-AU Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	9/06/01
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EJQ4N-1-AV Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	8/25/01
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJQ4N-1-AW Protocol: A QC Program: STANDARD TEST SET	06	8/29/01	0/00/00	9/20/01

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-206		Page 1 of 2	
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days	
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>			
Ice Chest No. Viking SN 08/98 050011		Field Logbook No. EL-1518-1		COA B20TW244C B20TW2674E BT		Method of Shipment Fed EX			
Shipped To Sovern Trent Incorporated St. Louis		Offsite Property No. RSP 106563		8/24/01		Bill of Lading/Air Bill No. N/A			

POSSIBLE SAMPLE HAZARDS/REMARKS Radiologic. Field Instrument Reading 35MRB 2 mre Von bottles. Possible α. Samples stored in Ref. # <u>Sitetrailer</u> at the 3728 Shipping Facility on <u>ERVA</u> Collector not available to relinquish samples on <u>8/28/01</u> for shipment.	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	60mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL
		Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (1) in Special Instructions.	VOA - 8260 (TCL)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time						
B12DC1 - A Dunes 2/28/02	SOIL	8/24/01	0200	X				X	B12MKO

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From Greg Thomas/Arvo Thomas	Date/Time 8/24/01	Received By/Stored In 200TW1d2 Site Trailer	Date/Time 8/24/01	(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (2) Semi VOA - 8270A (Add-On) (Triethyl phosphate), TPH Diesel Range - WPHH-D BT 8/24/01 (3) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc) (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium- 232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 = Total Sr; Technetium- 99; Total Uranium; Tritium - H3; Isotopic Uranium				S=Soil SB=Soilment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WF=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From 200TW1d2 Site Trailer	Date/Time 8/28/01	Received By/Stored In R. P. Thoren	Date/Time 8-28-01					
Relinquished By/Removed From R. P. Thoren	Date/Time 8-28-01	Received By/Stored In FED REP	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In JUDY LEE	Date/Time 8-29-01 0850					

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

JOB # F2B160152

TL St. Louis

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-058-206	Page <u>1 of 1</u>
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ	
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Price Code 8N Data Turnaround 45 Days	
Ice Chest No. Viking SN 08/98 050011		Field Logbook No. EL-1518-1		COA B20TW244C B20TW2674C ST		Method of Shipment Fed EX	
Shipped Government RT 9.28.01 Eastern Trans Incorporated Richmond ST Louis		Offsite Property No. PSP 106563		8/24/01		Bill of Lading/Air Bill No. WA	

POSSIBLE SAMPLE HAZARDS/REMARKS Radiological Field Instruments Reading 35mR B 2mR Y on bottles. Possible alpha. Samples stored in Ref.# 51 tetra trailer at the 3728 Shipping Facility on 8/24/01 . Collector not available to relinquish samples on 8/28/01 RT 8.28.01 for shipment.	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	60mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL
SAMPLE ANALYSIS		Mercury - 7170 - (CV)	Chromium Hex - 7196	See item (1) in Special Instructions.	VQA - #160A (ICL)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan

Sample No.	Matrix *	Sample Date	Sample Time						
B12DC1-A <i>Dunes</i> <i>2/28/01</i>	SOIL	8/24/01	0200		X			X	X B12 MKO

CHAIN OF POSSESSION	SPECIAL INSTRUCTIONS																								
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Relinquished By/Removed From <i>Greg Thomas/Brig Thomas</i></td> <td>Date/Time 0600</td> <td>Received By/Stored In <i>200TW12 Site Trailer</i></td> <td>Date/Time 0600</td> </tr> <tr> <td>Relinquished By/Removed From <i>200TW12 Site Trailer</i></td> <td>Date/Time 0415</td> <td>Received By/Stored In <i>R. Thore</i></td> <td>Date/Time 0415</td> </tr> <tr> <td>Relinquished By/Removed From <i>R. Thore</i></td> <td>Date/Time 0450</td> <td>Received By/Stored In <i>FED EX</i></td> <td>Date/Time 8-28-01</td> </tr> <tr> <td>Relinquished By/Removed From</td> <td>Date/Time</td> <td>Received By/Stored In</td> <td>Date/Time</td> </tr> <tr> <td>Relinquished By/Removed From</td> <td>Date/Time</td> <td>Received By/Stored In</td> <td>Date/Time</td> </tr> <tr> <td>Relinquished By/Removed From</td> <td>Date/Time</td> <td>Received By/Stored In</td> <td>Date/Time</td> </tr> </table>	Relinquished By/Removed From <i>Greg Thomas/Brig Thomas</i>	Date/Time 0600	Received By/Stored In <i>200TW12 Site Trailer</i>	Date/Time 0600	Relinquished By/Removed From <i>200TW12 Site Trailer</i>	Date/Time 0415	Received By/Stored In <i>R. Thore</i>	Date/Time 0415	Relinquished By/Removed From <i>R. Thore</i>	Date/Time 0450	Received By/Stored In <i>FED EX</i>	Date/Time 8-28-01	Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	<p>(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045</p> <p>(2) Semi-VQA - 8270A (Add-On) (Triethyl phosphate); TPH Diesel Range - WTPH-D</p> <p>(3) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)</p> <p>(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-230, Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium</p>
Relinquished By/Removed From <i>Greg Thomas/Brig Thomas</i>	Date/Time 0600	Received By/Stored In <i>200TW12 Site Trailer</i>	Date/Time 0600																						
Relinquished By/Removed From <i>200TW12 Site Trailer</i>	Date/Time 0415	Received By/Stored In <i>R. Thore</i>	Date/Time 0415																						
Relinquished By/Removed From <i>R. Thore</i>	Date/Time 0450	Received By/Stored In <i>FED EX</i>	Date/Time 8-28-01																						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time																						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time																						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time																						

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

SAMPLE ACTIVITY/HAVE

SAMPLE #: B12MK0
 SAMPLE VOLUME: 40 grams *Redscreen Result*
 PACKAGE MASS: 502 grams

HAVE	Pci/sample	Pci/gram	CI/gram	CI/pkg	TBq/pkg	MBq/pkg
Cs-137	1.60E+06	4.00E+04	4.00E-08	2.01E-05	7.43E-07	7.43E-01
Th-234	6.30E+04	1.58E+03	1.58E-09	7.91E-07	2.93E-08	2.93E-02
Pu-239	8.00E+04	2.00E+03	2.00E-09	1.00E-06	3.71E-08	3.71E-02
Am-241	1.60E+04	4.00E+02	4.00E-10	2.01E-07	7.43E-09	7.43E-03
Sr-90	1.80E+06	4.50E+04	4.50E-08	2.26E-05	8.36E-07	8.36E-01
TOTALS:	3.56E+06	8.90E+04	8.90E-08	4.47E-05	1.85E-06	1.65

SAMPLE #: B12MJ8
 SAMPLE VOLUME: 35 grams *Redscreen result*
 PACKAGE MASS: 485 grams

HAVE	Pci/sample	Pci/gram	CI/gram	CI/pkg	TBq/pkg	MBq/pkg
Cs-137	1.30E+08	3.71E+04	3.71E-08	1.80E-05	6.67E-07	6.67E-01
Pu-239	2.00E+05	5.71E+03	5.71E-09	2.77E-06	1.03E-07	1.03E-01
Am-241	4.80E+04	1.37E+03	1.37E-09	6.65E-07	2.46E-08	2.46E-02
Sr-90	1.50E+06	4.29E+04	4.29E-08	2.08E-05	7.69E-07	7.69E-01
TOTALS:	3.05E+06	8.71E+04	8.71E-08	4.22E-05	1.56E-06	1.56

ACCUMULATED ACTIVITY FOR ENTIRE PACKAGE

HAVE	CI/pkg	TBq/pkg	MBq/pkg
Cs-137	3.81E-05	1.41E-06	1.41E+00
Th-234	7.91E-07	2.93E-08	2.93E-02
Pu-239	3.78E-06	1.40E-07	1.40E-01
Am-241	8.66E-07	3.20E-08	3.20E-02
Sr-90	4.34E-05	1.60E-06	1.60E+00
Totals:	8.69E-05	3.22E-06	3.22

← ON RSR

LIMITED QUANTITY SHIPMENT (TBO/PKG)

HAVE	TBq/pkg	A2 VALUES	LTD. QTY A2(10-3) solid normal form	Derived Value Have/A2 Values	
Cs-137	1.41E-06	0.5	5.00E-04	2.82E-03	0.00
Th-234	2.93E-08	0.2	2.00E-04	1.46E-04	0.00
Pu-239	1.40E-07	2.00E-04	2.00E-07	6.98E-01	0.70
Am-241	3.20E-08	2.00E-04	2.00E-07	1.60E-01	0.16
Sr-90	1.60E-06	0.1	1.00E-04	1.60E-02	0.02
UNITY TOTAL:				3.78E-01	0.88

Radioactive material, excepted package, limited quantity of material
 UN2910
 No RQ
 Fissile Excepted

Kessner, Joan H

From: mward@stl-inc.com
Sent: Thursday, August 30, 2001 11:36 AM
To: jhkessne@mail.bhi-erc.com; jwaddell@stl-inc.com
Subject: Cr6+ for SAF B01-058
Importance: High

These samples have not yet been shipped to Richland. After re-packaging them in the container, the rad readings indicated that it needed to be sent back as a "white-1". We are going to hold them one more day to make sure that we send them correctly.

Joan: The rad screening info sent with the COC lists the unit activity as "each" instead of pc/g. Is there any way for you to know which of the bottles was used to determine the activity levels. Our RSO said that that info would be useful to him in making his determination.

I will let you both know when these get shipped.

to => marti ward

fax => (314) 298-8757

from => joan kessner

marti --

this should help

joan

8/30/01

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9604

Sample Date & Time 8/23/01 0130

Project ID: 200E B-7A

SAF Number: B01-058

Date Analyzed 8/24/01 10:32:

Sample ID: B12MJ8

Gamma Energy Analysis

Nuclide	Activity (pCi/g) ^{EA}	Error (pCi/g) ^{EA}	MDC (pCi/g) ^{EA}
K-40	< 2.2E+03		2.2E+03
Co-60	< 5.0E+02		5.0E+02
Cs-137	1.3E+06 +/-	2.7E+05	1.7E+03
Eu-152	< 5.6E+03		5.6E+03
Eu-155	< 5.9E+03		5.9E+03
Tl-208	< 3.9E+03		3.9E+03
Pb-212	< 2.3E+04		2.3E+04
Bi-214	< 3.9E+03		3.9E+03
Pb-214	< 4.1E+03		4.1E+03
Ra-226	< 4.3E+04		4.3E+04
Ac-228	< 2.4E+03		2.4E+03
Pa-234	< 4.8E+03		4.8E+03
Th-234	< 2.3E+04		2.3E+04
U-235	< 1.1E+04		1.1E+04
Am-241	4.8E+04 +/-	6.2E+03	4.5E+03

$5r^{90} = 1.5 \times 10^6$

QUALITATIVE ONLY
DUE TO HIGH DEAD TIME
13.3% COUNTED
2" ABOVE DETECTOR

GH

$P_2 = 2 \times 10^5$

Total GEA (pCi/g) ^{EA}	1.3E+06	+/-	2.8E+05
---------------------------------	---------	-----	---------

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	N/R	+/- N/R
Gross Beta	N/R	+/- N/R

TIE TO
B12C89

Defaultions:

All errors reported at 2 standard deviations.

N/R = no result or analysis not requested. <MDA = 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 > MDA 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-238 dau 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-232 dau 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

8/24/01

G. L. Hastings

Report To

CS Clearluck

SJ Trent

Joan Kessner

Fax

372-9292

372-9292

372-9487

Report Printed: Friday, August 24, 2001

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9606

Sample Date & Time 8/24/01 0200

Project ID: 200E B-7A

SAF Number: B01-058

Date Analyzed 8/24/01 1:32:1

Sample ID: B12MK0

Gamma Energy Analysis

Nuclide	Activity (pCi/g) ^{EA}	Error (pCi/g) ^{EA}	MDC (pCi/g) ^{EA}
K-40	< 3.0E+03		3.0E+03
Co-60	< 6.7E+02		6.7E+02
Cs-137	1.6E+06 +/-	2.7E+05	7.0E+03
Eu-152	< 6.6E+03		6.6E+03
Eu-154	< 1.9E+03		1.9E+03
Eu-155	< 6.8E+03		6.8E+03
Tl-208	< 4.6E+03		4.6E+03
Pb-212	< 2.7E+04		2.7E+04
Bi-214	< 5.2E+03		5.2E+03
Pb-214	< 4.8E+03		4.8E+03
Ra-226	< 4.8E+04		4.8E+04
Ac-228	< 3.1E+03		3.1E+03
Pa-234	< 5.6E+03		5.6E+03
Th-234	6.3E+04 +/-	2.3E+04	3.7E+04
U-235	< 1.3E+04		1.3E+04
Am-241	1.6E+04 +/-	3.8E+03	5.3E+03

5.70
1.8 x 10⁶

P_a
8 x 10⁴

QUALITATIVE ONLY
DUE TO HIGH DOSE TIME
COUNTED SAMPLE 1.25"
ABOVE DETECTOR.

NOTE: DUE TO THE HIGH DOSE
NO GAB WAS AVAILABLE
TO HELP WITH THE
IDENTIFICATION OF THE
TH-234 AND AM-241
ACTIVITIES. BOTH
ACTIVITIES REPORTED.

GH 8/24/01

^{EA}
Total GEA (pCi/g) 1.7E+06 +/- 3.0E+05

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	N/R +/-	N/R
Gross Beta	N/R +/-	N/R

TIC TO
BIZDCI

Definitions:

All errors reported at 2 standard deviations.

N/R = no result or analysis not requested. <MDA = 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 > MDA 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-238da 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-232da 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

G. Hastings

8/24/01

Report To

CS Carluck

SJ Trent

Joan Kessner

Fax

372-9292

372-9292

372-9487

Report Printed: Friday, August 24, 2001

St. Louis

1. SHIP FROM U.S. DEPT. OF ENERGY C/O
 Company BELTRANFORD
 Address 3728 BUILDING / 300 4 RR 3
 City, State, Zip RICHLAND, WA 99352
 Contact RIKNI THOREN
 Phone (509) 521-8003

RADIOACTIVE SHIPMENT RECORD **106563**
 Page 1 of 2
 Ship Prepaid Collect
 Via Motor Air Psgr UPS
 Rail Air Cargo Site Carrier
 SHIPMENT AUTHORIZATION NUMBER _____

2. SHIP TO
 Company SEVERN TRENT INC.
 Address 13715 RIDER TRAIL NORTH
 City, State, Zip BARTH CITY, MD 21015
 Attention MARTIN WARD
 Phone (314) 298-8556

6. Markings Applied
 Radioactive - LSA
 Radioactive - SCO
 Type A W/A
 Type B with triple foil
 7. For Normal Form only
 Identify
 Physical Form Liquid Gas
 Solid
 Chemical Form Elemental
 Metal Nitrate
 Oxide Mixture
 Other

5. HM Proper Shipping Name: _____ Radioactive Material:
 excepted package - empty packaging 7 UN2910
 excepted package - instruments or articles 7 UN2910
 excepted package - limited quantity of material 7 UN2910
 excepted package - articles manufactured from natural or depleted uranium or natural thorium 7 UN2910
 Special Form, n.o.s. 7 UN2974
 Low Specific Activity, n.o.s. 7 UN2912
 n.o.s. 7 UN2982
 Fissile, n.o.s. 7 UN2918
 Surface Contaminated Object 7 UN2913

8. LSA Description
 LSA-I
 LSA-II
 LSA-III W/A
 SCO-I
 SCO-II
 9. EMERGENCY RESPONSE
 Telephone 1-888-766-0711
 Emergency Response Guide(s) 161
 10. Labels Applied
 Empty
 Radioactive White - I
 Radioactive Yellow - II
 Radioactive Yellow - III
 Subsidiary Hazard
 Highway Route Controlled Quantity
 Exclusive Use Shipment with instructions
 Placards Applied
 If Rail Specify:
 Fissile Excepted, Grams < 15g
 Excepted Package Statement

Warning - Fissile Material Controlled Shipment. Do Not Load More Than _____ Packages Per Vehicle. In Loading and Storage Areas, Keep at Least 20 Feet From Other Packages Bearing Radioactive Labels.

No.	No. Pkg	Model Package	COC/Spec	Serial No.	Seal No.	Isotopes	Ttl	Pkg/Package	Gr. Wt. Kg	
11.	1	PLASTIC BOX	4HZU	Synthetic	TAPE	P-239, Am-241	NA	3.22E-06	56 Kg	
		VIKING								
		987g Solid Double Poly bagged in foam								
		inserts with blue 1cc PKG in VIKING								
		(Shipper may describe package in detail on one of the unused lines above)							TOTALS	NA 3.22E-06 56 Kg

12. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.
 Certifier's Signature [Signature] On behalf of DOE-RL Date 8-28-01 Organization ERL-AFS Complete Cost Code (Inc. End Function) B20TW2A4UC

13. Surface Dose Rate of Package <0.005 or _____ mSv/hr
 Dose Rate @ 1 Meter from Surface of Package <0.005 or _____ mSv/hr
 Smears of Outer Container <0.41 Bq (22 dpm) β γ/cm²
 <0.04 Bq (2.2 dpm) α/cm²
 <Tbl. 2-2 HSRCM Onsite Limits
 TRUCK LOAD OR EXCLUSIVE USE
 Surface <2 mSv/hr (200 mrem/hr)
 @ 2 meters <0.1 mSv/hr (10 mrem/hr)
 @ Cab or sleeper <0.02 mSv/hr (2 mrem/hr) (Using N+B Y)
 Signature - Radiation Monitoring Jerry Duffey Bldg. 3728 Survey No. RCF-01-0325 Date 8-28-01

14. Vehicle Number 661-06052 DRIVER SIGNATURE [Signature] RECEIVER SIGNATURE _____ Date _____

15. Shipment has been inspected and verified to be in compliance with DOT regulations
 Authorized Signature [Signature] Printed Name Keith R. Smith Date 8-28-01

16. AIR TRANSPORT CERTIFICATION
 N/A Cargo Aircraft Only Labels Applied Passenger Aircraft
 Ltd Qty Research/Medical Diagnosis
 <3 T.I. Human Medical Research
 Pkg. Dimensions (cm) _____

17. Tracking No. RMBH-4709 Date Shipped 8-28-01 Routing FedEx ETA 8-29-01
 Surveyed By [Signature] Date 8-28-01 Approved for Shipment Offsite [Signature] Date 8-28-01

Priority overnight - WEDNESDAY Delivery 54-6000-088 (06/97) 23

Excerpted
PK6

10^{-3} Az

TB_g

1 TB_g = 27 Ci

	<u>Az</u>	<u>10^{-3} Az</u>
Cs ₁₃₇ ^a	$\phi.6 = 16.2 \text{ Ci}$	16.2 mCi
Pu ₂₃₉	$\phi.001 = \phi.027 \text{ Ci} = 27 \text{ mCi}$	27 μCi
Am ₂₄₁	$\phi.001 = \phi.027 \text{ Ci} = 27 \text{ mCi}$	27 μCi
Sr ₉₀ ^a	$\phi.3 = 8.1 \text{ Ci}$	8.1 mCi
Th ₂₃₄ ^a	$\phi.3 = 8.1 \text{ Ci}$	8.1 mCi

α -prod daughter products

Sample 1 X 10⁹g

- Cs₁₃₇ 1.6 μCi /g
- Th₂₃₄ $\phi.0063 \mu\text{Ci}$
- Am₂₄₁ $\phi.0016 \mu\text{Ci}$
- Sr₉₀ 1.8 μCi

Sample 2 X 35g

- Cs 1.3 μCi
- Pu $\phi.020 \mu\text{Ci}$
- Am $\phi.0048 \mu\text{Ci}$
- Sr₉₀ 1.5 μCi

Sum Sample #1 + #2 < 10^{-3} Az

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location B-7A/200 E	SAF No. B01-058	Air Quality <input type="checkbox"/>		
Ice Chest No. VIKING Sn 08/98 050011	Field Logbook No. EL-1518-1	COA B20TW2A44C B20TW2674C JT	Method of Shipment Fed EX		
Shipped To SEVERN TRENT	Offsite Property No. KSR 106563	8/23/01	Bill of Lading/Air Bill No. NA		

POSSIBLE SAMPLE HAZARDS/REMARKS Radiological Field Instrument Readings on bottles ranged from 15MRB/1.5MRV to 3.0MRB/1.3MRV. Possible of (mercury) of this sample originally sent to RCF for on site analysis. Sample 2 of 2 represents custody transfer to RCF. The sample was picked up from RCF and re-analyzed for off-site analysis. A new IIC was generated for appropriate off site custody transfer. Page 1 of 2 represents custody transfer to offsite laboratory for directed analysis.	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1
	Volume	60mL	60mL	120mL	250mL	250mL	250mL	250mL
	Chromium Hex - 7196	Mercury - 7470 - (CV)	VDA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	

Sample No.	Matrix *	Sample Date	Sample Time							
B12C89 - B 2/28/01	SOIL	8-23-01	0130	X	X	X	X			Tie to B12C89 B BIZMJS

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By G. Thomas/Watson D.	Date/Time 8/23/01	Received By Stored in	Date/Time 0815
Relinquished By 200 TW 1 & 2 site trailer	Date/Time 0828	Received By R. Thoren	Date/Time 0825
Relinquished By R. Thoren	Date/Time 8-28-01	Received By FED EX	Date/Time
Relinquished By	Date/Time	Received By 8/29/01	Date/Time 0850
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VDA - 8370A (Add On) (Tributyl phosphate); TPH-Diesel Range - WTPILD

(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Barium-135); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Phosphorus; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90,90

Samples stored in Ref. # 3121 trailer at the 3728 Shipping Facility on 8/23/01. Collector not available to relinquish samples on 8/28/01 for shipment.

RT
8-28-01

Matrix *
S=Soil
ES=Ediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
W=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

OT # F2B160152

IL St. Louis

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-058-238 Page 1 of 1	
Collector Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location B-7A/200 E	SAF No. B01-058	Air Quality <input type="checkbox"/>		24 Hours	
Ice Chest No.	Field Logbook No. EL-1518-1	COA B20TW2A44C B20TW2674G AT	Method of Shipment Fed EX		Bill of Lading/Air Bill No.	
Shipped To Radiological Counting Facility	Offsite Property No. 8/23/01					

POSSIBLE SAMPLE HAZARDS/REMARKS Radiological Field Instrument Readings on bottles were 70 mR B/L, 5 mR Y on 125 mL and 3.0 mR B/L, 5 mR Y on 60 mL. Possible Special Handling and/or Storage	Preservation	None	Cool 4°C None AT 8/23/01						
	Type of Container	P	AG						
	No. of Container(s)	1	1						
	Volume	125mL	60mL						

SAMPLE ANALYSIS				Rad. Screen GEA	Rad. Screen GEA	AT 8/23/01													
------------------------	--	--	--	--------------------	--------------------	------------	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time																
B12MJ8	SOIL	8-23-01	0130	*	X	9604	RT 8-28-01	812C89											
B12C89-A B	Soil	8-23-01	0130	*	X	9605													
	Dupe																		
	2/28/02																		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>Greg Thomas/Watson</i>	Date/Time 0915	Received By/Stored In <i>J. Duffey</i>	Date/Time 0915	Sample originally sent to RCF for on site analysis. Page 2 of 2 represents custody transfer to RCF. The sample was picked up from RCF and re-labeled for off-site analysis. A new COC was generated for RT 8-28-01 appropriate off-site custody transfer. Page 1 of 2 represents custody transfer to offsite laboratory for directed analysis.		S=Soil SB=Soilment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Tissue WP=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>J. Duffey</i>	Date/Time 0750	Received By/Stored In <i>Greg Thomas/Watson</i>	Date/Time 0750			
Relinquished By/Removed From <i>Greg Thomas/Watson</i>	Date/Time 0810	Received By/Stored In <i>Ref 3C</i>	Date/Time 0810			
Relinquished By/Removed From <i>Ref 3C</i>	Date/Time 0230	Received By/Stored In <i>R. Thorer</i>	Date/Time 0250			
Relinquished By/Removed From <i>Ref 3C</i>	Date/Time 8-28-01	Received By/Stored In <i>Ref 3C</i>	Date/Time 8-28-01			
Relinquished By/Removed From	Date/Time	Received By/Stored In <i>SW</i>	Date/Time 8-29-01			

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Lot No.: F1H290206
W03587

**Condition Upon Receipt Form
St. Louis Laboratory**

Client: Flour Hanford
Quote No: 43018
Shipper/No: FedX 4476 546126

Date: 8.29.01 Time: 0850
Initiated by: JW
COC/RFA Numbers: 801-058-206, 166, 238

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

- | | | | |
|---|--|---|---|
| 1. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received in undamaged condition. | 5. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample volume sufficient for analysis. |
| 2. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received within 4°C ± 2°C*
Record temperature: <u>17</u> | 6. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received with Chain of Custody. |
| 3. <input type="radio"/> Y <input type="radio"/> N | Sample received with proper pH**. <u>Soil N/A</u> | 7. <input checked="" type="radio"/> Y <input type="radio"/> N | Chain of Custody matches sample IDs on containers. |
| 4. <input checked="" type="radio"/> Y <input type="radio"/> N | Sample received in proper containers. | 8. <input checked="" type="radio"/> Y <input type="radio"/> N | Custody seal received intact and tamper evident on cooler. |
| | | 9. <input type="radio"/> Y <input checked="" type="radio"/> N | Custody seal received intact and tamper evident on bottles. |

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes: Blue ice melted - not enough to cool samples.
All jars contaminated on outside with radioactive
soil granules. We used Contrad solution to
clean the outside of the jars. All jars were
sumped as well as the inside of the cooler.
After sumping found no contamination.
Also, shipping container is expired and should
not be used. Mfg. date is 1998

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 8.29.01

Project Management Review: [Signature] Date: 8.29.01

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR
INITIALS AND THE DATE NEXT TO THAT ITEM

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 9/04/01
Time: 8:50:22
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML7
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-1H310250-001
WORK ORDER: EJXPC
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/28/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 1:00
RECEIVING TIME: 9:20

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJXPC-1-AC Protocol: A	06	8/31/01	12/05/01	1/02/02
QC Program: STANDARD TEST SET				
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EJXPC-1-AA Protocol: A	06	8/31/01	0/00/00	12/05/01
QC Program: STANDARD TEST SET				
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJXPC-1-AD Protocol: A	06	8/31/01	12/05/01	1/02/02
QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJXPC-1-AE Protocol: A	06	8/31/01	12/05/01	12/07/01
QC Program: STANDARD TEST SET				
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJXPC-1-AF Protocol: A	06	8/31/01	12/05/01	12/07/01
QC Program: STANDARD TEST SET				
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJXPC-1-AG Protocol: A	06	8/31/01	12/05/01	1/02/02
QC Program: STANDARD TEST SET				
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJXPC-1-AH Protocol: A	06	8/31/01	12/05/01	12/07/01
QC Program: STANDARD TEST SET				
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJXPC-1-AJ Protocol: A	06	8/31/01	0/00/00	9/25/01
QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EJXPC-1-AK Protocol: A	06	8/31/01	9/25/01	9/25/01
QC Program: STANDARD TEST SET				

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML7
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-1H310250-001
WORK ORDER: EJXPC
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/28/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 1:00
RECEIVING TIME: 9:20

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJXPC-1-AL Protocol: A	06	8/31/01	0/00/00	9/11/01
QC Program: STANDARD TEST SET				
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EJXPC-1-AM Protocol: A	06	8/31/01	0/00/00	8/30/01
QC Program: STANDARD TEST SET				
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJXPC-1-AN Protocol: A	06	8/31/01	0/00/00	9/25/01
QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EJXPC Protocol: A	06	9/04/01	0/00/00	2/24/02
QC Program: STANDARD TEST SET				
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EJXPC Protocol: A	06	9/04/01	9/25/01	9/25/01
QC Program: STANDARD TEST SET				

L St. Louis

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 9/04/01
Time: 8:50:22
User Id.: WARDM

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981

QUOTE/SAR #: 43018
LAB ID: F-1H310250-002
WORK ORDER: EJXPV
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/26/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 23:45
RECEIVING TIME: 9:20

SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S137

LOT COMMENTS: Metals: CRDL standard required +/-25%

MATRIX: SOLID
SAMPLE ID: B12ML4-A *NC 2/27/02*

QC PACKAGE: Report

SDG# :

SAMPLE COMMENTS:

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EJXPV Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	2/22/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-OG-01) EJXPV Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	9/23/01	9/23/01
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EJXPV-1-AM Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	12/03/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJXPV-1-AN Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/03/01	12/31/01
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJXPV-1-AP Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/03/01	12/31/01
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJXPV-1-AQ Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/03/01	12/05/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJXPV-1-AR Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/03/01	12/05/01
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJXPV-1-AT Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/03/01	12/31/01

St. Louis

PSL20300
Page 2

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 9/04/01
Time: 8:50:22
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058

QUOTE/SAR #: 43018
LAB ID: F-1H310250-002
WORK ORDER: EJXPV
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/26/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 23:45
RECEIVING TIME: 9:20

AMOUNT REC'D: 60G, 120G, 250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML4-A *2121102*
QC PACKAGE: Report
SAMPLE COMMENTS:

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJXPV-1-AU Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/03/01	12/05/01
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJXPV-1-AV Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	9/23/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EJXPV-1-AW Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	9/23/01	9/23/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJXPV-1-AX Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	9/09/01
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EJXPV-1-AO Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	8/28/01
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJXPV-1-AI Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	9/23/01

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 9/04/01
Time: 8:50:22
User Id.: WARDM

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058

QUOTE/SAR #: 43018
LAB ID: F-1H310250-003
WORK ORDER: EJXP7
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/27/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 1:15
RECEIVING TIME: 9:20

AMOUNT REC"D: 60G,120G,250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML5-A *Dupes*
QC PACKAGE: Report
SAMPLE COMMENTS: *2/28/02*

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EJXP7 Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	2/23/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EJXP7 Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	9/24/01	9/24/01
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EJXP7-1-AM Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	12/04/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJXP7-1-AN Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	1/01/02
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJXP7-1-AP Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	1/01/02
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJXP7-1-AQ Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	12/06/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJXP7-1-AR Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	12/06/01
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJXP7-1-AT Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	1/01/02

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058

QUOTE/SAR #: 43018
LAB ID: F-1H310250-003
WORK ORDER: EJXP7
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/27/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 1:15
RECEIVING TIME: 9:20

AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML5-A *Dryes*
QC PACKAGE: Report *2/28/02*
SAMPLE COMMENTS:

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJXP7-1-AU Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	12/06/01
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJXP7-1-AV Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	9/24/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EJXP7-1-AW Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	9/24/01	9/24/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJXP7-1-AX Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	9/10/01
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EJXP7-1-A0 Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	8/29/01
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJXP7-1-A1 Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	9/24/01

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML6-A *Days 2/28/02*
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-1H310250-004
WORK ORDER: EJXQC
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/27/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 4:30
RECEIVING TIME: 9:20

SDG# :

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EJXQC Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	2/23/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-OG-01) EJXQC Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	9/24/01	9/24/01
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EJXQC-1-AM Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	0/00/00	12/04/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EJXQC-1-AN Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	1/01/02
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) EJXQC-1-AP Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	1/01/02
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EJXQC-1-AQ Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	12/06/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EJXQC-1-AR Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	12/06/01
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EJXQC-1-AT Protocol: A QC Program: STANDARD TEST SET	06	9/04/01	12/04/01	1/01/02

PSL20300
Page 2

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 9/04/01
Time: 8:50:22
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200-TW-1&2SOIL
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-058
AMOUNT REC'D: 60G,120G,250G
STORAGE LOC: S137
LOT COMMENTS: Metals: CRDL standard required +/-25%
MATRIX: SOLID
SAMPLE ID: B12ML6-A
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43018
LAB ID: F-1H310250-004
WORK ORDER: EJXQC
RECEIVING DATE: 8/31/01
SAMPLING DATE: 8/27/01
ANALYTICAL DUE DATE: 10/01/01N
REPORT DUE DATE: 10/15/01
PRIORITY: 30
SAMPLING TIME: 4:30
RECEIVING TIME: 9:20

SDG# :

Beginning Depth: .00 Ending Depth: .00

Plays 2/28/02

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EJXQC-1-AU Protocol: A	06	9/04/01	12/04/01	12/06/01
QC Program: STANDARD TEST SET				
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EJXQC-1-AV Protocol: A	06	9/04/01	0/00/00	9/24/01
QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-OR-HN-01) EJXQC-1-AW Protocol: A	06	9/04/01	9/24/01	9/24/01
QC Program: STANDARD TEST SET				
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EJXQC-1-AX Protocol: A	06	9/04/01	0/00/00	9/10/01
QC Program: STANDARD TEST SET				
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EJXQC-1-AO Protocol: A	06	9/04/01	0/00/00	8/29/01
QC Program: STANDARD TEST SET				
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EJXQC-1-AI Protocol: A	06	9/04/01	0/00/00	9/24/01
QC Program: STANDARD TEST SET				

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-058-252	Page 1 of 1			
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>		45 Days	
Ice Chest No. ERC-01-026		Field Logbook No. EL-1518-1		COA BZOTW244K BZOTW2674C HT		Method of Shipment Fed EX			
Shipped To Severn Trent Incorporated - ST. LOUIS		Offsite Property No. A010288 8/28/01		Bill of Lading/Air Bill No. 42357954 6965					

POSSIBLE SAMPLE HAZARDS/REMARKS <i>Radiological. Field Instruments</i> <i>Reading Unkground</i> Special Handling and/or Storage	Preservation	Cool 4C	None	None					
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan
Sample No.	Matrix *	Sample Date	Sample Time								
B12ML7	SOIL	08/28/01	0100	X	X		X				B12ML4

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From <i>Gus Thomas</i>	Date/Time 0900	Received By/Stored In <i>Ref IB</i>	Date/Time 0900
Relinquished By/Removed From <i>R. J. B.</i>	Date/Time 8:30	Received By/Stored In <i>R. J. B.</i>	Date/Time 8:30
Relinquished By/Removed From <i>R. J. B.</i>	Date/Time 8:30	Received By/Stored In <i>R. J. B.</i>	Date/Time 8:30
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VOA - 8270A (Add-On) (Tributyl-phosphate); TPH-Diesel Range - W/PH D

(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Barium-152, Barium-154, Barium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 = Total Sr; Technetium-99; Total Uranium; Tantalum - H3; Isotopic Uranium

**Samples stored in Ref.# IB at the 3728 Shipping Facility on 8/28/01.
Collector not available to relinquish samples on 8/30/01 for shipment.**

Matrix *
S=Soil
SB=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Timex
WT=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By <i>[Signature]</i>						
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By		Date/Time		

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9635

Sample Date & Time 8/28/01 0100

Project ID: 200E B-7A

SAF Number: B01-058

Date Analyzed 8/29/01 8:49:3

Sample ID: B12MK4

Gamma Energy Analysis

Nuclide	Activity (pCi/g)	Error (pCi/g)	MDC (pCi/g)
K-40	2.5E+01	+/- 9.2E+00	5.9E+00
Co-60	< 5.3E-01		5.3E-01
Cs-137	1.4E+01	+/- 2.6E+00	6.4E-01
Ba-152	< 1.8E+00		1.8E+00
Pu-154	< 2.1E+00		2.1E+00
Eu-155	< 1.6E+00		1.6E+00
Tl-208	< 1.5E+00		1.5E+00
Pb-212	< 6.7E+00		6.7E+00
Bi-214	4.4E+00	+/- 2.4E+00	3.1E+00
Pb-214	4.4E+00	+/- 1.3E+00	1.4E+00
Ra-226	< 8.4E+00		8.4E+00
Ac-228	< 1.7E+00		1.7E+00
Pa-234	< 1.1E+00		1.1E+00
Th-234	< 6.7E+00		6.7E+00
U-235	2.8E+00	+/- 1.8E+00	2.8E+00
Au-241	< 9.2E-01		9.2E-01

Tie to
B12ML

Total GEA (pCi/g)	5.1E+01	+/- 1.7E+01
-------------------	---------	-------------

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	1.8E+00	+/- 5.7E-01
Gross Beta	5.6E+01	+/- 2.7E+00

Alpha MDC (pCi/g)	Beta MDC (pCi/g)
7.7E-01	3.0E+01

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 U-235 is based on the activity of Pa-233.
 U-238 decay 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-232 decay 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, uranium 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 C. W. Laedes 8/29/01

Report To
 CS Caslock
 SJ Trent
 Joan Ketsner

Fax
 172-9292
 372-9292
 372-9487

Report Printed: Wednesday, August 29, 2001

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-058-249		Page 1 of 1						
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days					
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>									
Ice Chest No. <i>Uiking S/N 08/98050012</i>		Field Logbook No. EL-1518-1		COA <i>B20TW2A44C</i> <i>B20TW2674C AT</i>		Method of Shipment Fed EX									
Shipped To Severn Trent Incorporated - <i>ST. Louis</i>		Offsite Property No. <i>RSTR 107053 8/27/01</i>			Bill of Lading/Air Bill No. <i>NA</i>										
POSSIBLE SAMPLE HAZARDS/REMARKS <i>1500MR/3 } NON CONTACT</i> <i>800CPM/8</i> <i>100MR/8</i> Samples stored in Ref. # <i>1014</i> at the 3728 Shipping Facility on <i>8/27/01</i> . Collector not available to relinquish samples on <i>8/13/01</i> for shipment.				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)		1	1	1	1	1	1	1	1	1	1
				Volume		120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
				See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan				
SAMPLE ANALYSIS <i>8.30.01</i>												<i>Tie to</i>			
Sample No.	Matrix *	Sample Date	Sample Time												
<i>B12ML4 - A Dunes</i> <i>2/28/02</i>	SOIL	<i>8/26/01</i>	<i>2345</i>	<i>X</i>	<i>X</i>		<i>X</i>						<i>B12ML4</i>		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS					Matrix *		
Relinquished By/Removed From <i>OS WATSON/REMOVED</i>		Date/Time <i>08/27/01 0605</i>		Received By/Stored In <i>REF. TW 142</i>		Date/Time <i>08/27/01 0605</i>		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi VOA - 8270A (Add-On) (Tributyl phosphate), EPA Diesel Range - WTPH-D (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H2; Isotopic Uranium					S=Soil SB=Soil SO=Solid SL=Sludge W=Water O=Oil A=Air DB=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By/Removed From <i>REMOVED</i>		Date/Time <i>8:30.01</i>		Received By/Stored In <i>REMOVED</i>		Date/Time <i>8:30.01</i>									
Relinquished By/Removed From <i>REMOVED</i>		Date/Time <i>8:30.01</i>		Received By/Stored In <i>FED EX</i>		Date/Time									
Relinquished By/Removed From <i>FED EX</i>		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
LABORATORY SECTION		Received By <i>[Signature]</i>		Title							Date/Time <i>08-31-01/0920</i>				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By					Date/Time						

BHI-EE-011 (10/99)

(2)

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9609

Sample Date & Time 8/26/01 2345

Project ID: 200E B-7A

SAF Number: B01-058

Date Analyzed 8/27/01 11:44:

Sample ID: B12MK1

Gamma Energy Analysis

Nuclide	Activity (pCi/g)	Error (pCi/g)	MDC (pCi/g)
K-40	< 2.0E+03		2.0E+03
Co-60	< 2.7E+02		2.7E+02
Cs-137	5.7E+05 +/-	1.1E+05	1.1E+03
Eu-152	< 3.8E+03		3.8E+03
Eu-154	< 7.6E+02		7.6E+02
Eu-155	< 6.1E+03		6.1E+03
Tl-208	< 2.5E+03		2.5E+03
Pb-212	< 1.7E+04		1.7E+04
Bi-214	< 2.4E+03		2.4E+03
Pb-214	< 2.7E+03		2.7E+03
Ra-226	< 3.5E+04		3.5E+04
Ac-228	< 1.4E+03		1.4E+03
Pa-234	< 5.1E+03		5.1E+03
Th-234	< 3.4E+04		3.4E+04
U-235	< 1.1E+04		1.1E+04
Am-241	< 4.0E+03		4.0E+03

QUALITATIVE ONLY
DUE TO HIGH DEAD TIME
SAMPLE COUNTED
3" ABOVE DETECTOR

GH
8/28/01
TIE
TO
B12MK4

ADD ON!
 $A_m = 4 \times 10^3$
 $Pu^{239} = 1 \times 10^4$

$Sr^{90} = 6 \times 10^5$

Total GEA (pCi/g)	Activity (pCi/g)	Error (pCi/g)
	5.7E+05	+/- 1.1E+05

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	N/R	+/- N/R
Gross Beta	N/R	+/- N/R

Definitions:

All errors reported at 2 standard deviations.
N/R = no result or analysis not requested. <MDA = Ld
All GEA results reported as "<" list the Minimum Detectable
Rounding error may result in the reported total GEA as

For soils and natural samples, the following apply

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-234m
U-238da is the activity of Pb-214 and Bi-214, short it probably does not exist in disturbed materials.
Th-232da is the activity of Ac-228, Pb-212, and Tl-208 products may not exist in disturbed materials.

Other samples, not containing natural materials, may be analyzed for the gross alpha analysis.

**The gross alpha results are not corrected for mass absorption coefficients
No peaks for this radionuclide were visible above background

SAMPLE VOLUME
40g

PCi/g
CONVERSION

$Cs-137 = 1.4E+04$ pCi/g

$Am-241 = 1.0E+02$ pCi/g

$Pu-239 = 2.5E+02$ pCi/g

$Sr-90 = 1.5E+04$ pCi/g

Analyst



G. L. Hasings

SJ Treat

372-9292

Joan Kessner

372-9487

Report Printed: Tuesday, August 28, 2001

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-058-250		Page 1 of 1						
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days					
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>									
Ice Chest No. <i>VIKING SN 08 98 050012</i>		Field Logbook No. EL-1518-1		COA <i>B20TWLA44C</i> <i>B20TW2674G AT</i>		Method of Shipment Fed EX									
Shipped To Sovern Trent Incorporated - ST. LOUIS		Offsite Property No. <i>RSR 10705</i>			<i>8/27/01</i>		Bill of Lading/Air Bill No. <i>WA</i>								
POSSIBLE SAMPLE HAZARDS/REMARKS FIELD RADIOLOGICAL INSTRUMENTS INDICATE 100 CPM & 20MR/B (2.5 MRY) 30N CONTACT Samples stored in Ref. # <i>1012</i> at the 3728 Shipping Facility on <i>8/21/01</i> . Collector not available to relinquish samples on <i>8/30/01</i> for shipment. <i>CT</i> <i>8:30.01</i> <i>SIS</i>				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)		1	1	1	1	1	1	1	1	1	1
				Volume		120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
				See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196 <i>8/27/01</i>	See item (2) in Special Instructions.	VOA - 8160A (TCL)	See item (3) in Special Instructions. <i>8/27/01</i>	See item (4) in Special Instructions.	Activity Scan <i>8/27/01</i>	<i>Tic to</i>			
Sample No.	Matrix *	Sample Date	Sample Time												
<i>3</i> B12ML5 - A	SOIL	<i>8/27/01</i>	<i>0115</i>	<i>X</i>	<i>X</i>		<i>X</i>					<i>B12MK2</i>			
		<i>Deliver</i>													
		<i>2/28/02</i>													
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VQA - 8120A (Add-On) (Triethyl phosphate); TPH Diesel Range - WTPH-D (4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-156); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium, Isotopic Thorium (Thorium-232), Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-90, 90 - Total Sr; Technetium-99; Total Uranium; Tritium - H2; Isotopic Uranium <i>8/27/01</i>							
<i>US WATSON</i>		<i>08/27/01 0645</i>		<i>REF. TW182</i>		<i>08/27/01 0645</i>									
<i>Raf Tula</i>		<i>0330</i>		<i>Raf Tula</i>		<i>0330</i>									
<i>Raf Tula</i>		<i>8:30.01</i>		<i>Raf Tula</i>		<i>8:30.01</i>									
<i>Raf Tula</i>		<i>0800</i>		<i>FED EX</i>		<i>8:30.01</i>									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
FED EX															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
LABORATORY SECTION		Received By		Title				Date/Time							
		<i>[Signature]</i>						<i>08-31-01 / 0920</i>							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time							

ERC Radiological Counting Facility Analysis Report

(3)

RCF Number RCF9610

Sample Date & Time 8/27/01 0115

Project ID: 200E B-7A

SAF Number: B01-058

Date Analyzed 8/28/01 8:33:2

Sample ID: B12MK2

Gamma Energy Analysis

Nuclide	Activity (pCi/g)	Error (pCi/g)	MDC (pCi/g)
K-40	9.6E+02	+/- 4.3E+02	3.7E+02
Co-60	< 6.0E+01		6.0E+01
Cs-137	2.7E+05	+/- 4.6E+04	2.2E+02
Eu-152	< 9.0E+02		9.0E+02
Eu-154	< 1.7E+02		1.7E+02
Eu-155	< 1.1E+03		1.1E+03
Tl-208	< 6.3E+02		6.3E+02
Pb-212	< 3.7E+03		3.7E+03
Bi-214	< 5.6E+02		5.6E+02
Pb-214	< 6.5E+02		6.5E+02
Ra-226	< 6.9E+03		6.9E+03
Ac-228	< 3.8E+02		3.8E+02
Pa-234	< 8.7E+02		8.7E+02
Th-234	< 7.4E+03		7.4E+03
U-235	< 1.9E+03		1.9E+03
Am-241	1.2E+03	+/- 4.6E+02	7.3E+02

ADD ON:
5.70 - 3 x 10⁵

P₂²³⁹ = 6 x 10³

TIERO
BIZMLS

Total GEA (pCi/g) 2.7E+05 +/- 4.7E+04

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	N/R	+/- N/R
Gross Beta	N/R	+/- N/R

Definitions:

All errors reported at 2 standard deviations.
 N/R = no result or analysis not requested. <MDA = 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 > MDA 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-238^{daughters} 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-232^{daughters} 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 [Signature] 8/28/01
 G. J. Hastings

Report To
 CS Czarnecki 372-9292
 SJ Trent 372-9292
 Joan Kessner 372-9487

Report Printed: Tuesday, August 28, 2001

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-058-251		Page 1 of 1					
Collector Thomas G./Watson D.		Company Contact Todd, M.E.		Telephone No. (509) 372-9631		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days				
Project Designation 200-TW-1 & 2 - Soil Sampling		Sampling Location B-7A/200 E		SAF No. B01-058		Air Quality <input type="checkbox"/>								
Ice Chest No. VIKING S/N 08/980500		Field Logbook No. ZEL-1518-1		COA B20TWZ A44C B20FWZ674C HT		Method of Shipment Fed EX								
Shipped To Sewern Trent Incorporated - ST. LOUIS		Offsite Property No. R5R 101053		8/27/01		Bill of Lading/Air Bill No. WAA								
POSSIBLE SAMPLE HAZARDS/REMARKS FIELD RADIOLOGICAL INSTRUMENTS INDICATE 200cpm 1mR/h (at 5mR/h) ON CONTACT Samples stored in Ref.# 1B at the 3728 Shipping Facility on 8/27/01 . Collector not available to relinquish samples on 8/30/01 for shipment. RT 8.30.01 SAMPLE ANALYSIS				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)	1	1	1	1	1	1	1	1	1	1
				Volume	120mL	60mL	60mL	250mL	60mL	250mL	250mL	60mL		
				See item (1) in Special Instructions.	Mercury - 7470 - (CV)	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	Activity Scan			
											TIE TO			
Sample No.	Matrix *	Sample Date	Sample Time											
B12ML6 - A <i>Dryer</i> <i>2/28/02</i>	SOIL	8/27/01	0430	X	X		X					BLANK 3		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From <i>T. Watson</i>		Date/Time 8/27/01 0745		Received By/Stored In <i>REF-1B</i>		Date/Time 08/27/01 0745		(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Lead} (2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045 (3) Semi-VOA - 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium				S=Soil SB=Sediment SO=Soil SL=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By/Removed From <i>Ref 1B</i>		Date/Time 8/30/01 0430		Received By/Stored In <i>R. Thorey</i>		Date/Time 8.30.01								
Relinquished By/Removed From <i>R. Thorey</i>		Date/Time 8.30.01		Received By/Stored In <i>FED EX</i>		Date/Time								
Relinquished By/Removed From <i>FED EX</i>		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
LABORATORY SECTION	Received By <i>[Signature]</i>	Title	Date/Time 08/31/01/0920	Disposed By	Date/Time									
FINAL SAMPLE DISPOSITION	Disposal Method													

ERC Radiological Counting Facility Analysis Report

④

RCF Number RCF9611

Sample Date & Time 8/27/01 0430

Project ID: 200E B-7A

SAF Number: B01-058

Date Analyzed 8/27/01 12:42:

Sample ID: B12MK3

Gamma Energy Analysis

Nuclide	Activity (pCi/g)	Error (pCi/g)	MDC (pCi/g)
K-40	1.1E+01	+/- 1.0E+01	9.0E+00
Co-60	< 9.5E-01		9.5E-01
Cs-137	9.0E+03	+/- 1.5E+03	5.1E+00
Eu-152	< 2.5E+01		2.5E+01
Eu-154	< 3.5E+00		3.5E+00
Eu-155	< 1.3E+01		1.3E+01
Tl-208	< 1.5E+01		1.5E+01
Pb-212	< 9.5E+01		9.5E+01
Pb-214	< 1.8E+01		1.8E+01
Bi-214	< 7.5E+00		7.5E+00
Pa-234	< 1.1E+01		1.1E+01
Th-234	< 6.4E+01		6.4E+01
U-235	< 3.2E+01		3.2E+01
Am-241	< 8.6E+00		8.6E+00

ADDON
5+90 12/104

TiETO
B12MK3

Total GEA (pCi/g) 9.0E+03 +/- 1.5E+03

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	3.9E+01	+/- 2.2E+00
Gross Beta	2.5E+03	+/- 4.6E+01

Alpha MDC (pCi/g)	Beta MDC (pCi/g)
1.4E+01	1.3E+03

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-238da 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-232da 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, transuramics 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 [Signature] 8/28/01
 G.L. Hastings

Report To CS Cearlock Fax 372-9292
 SJ Treat 372-9292
 Joan Kessner 372-9487

Report Printed: Tuesday, August 28, 2001

Lot No.: _____

**Condition Upon Receipt Form
St. Louis Laboratory**

Client: Bechtel Hanford
Quote No: 43018
Shipper/No: FedEx 4235 7954 6965

Date: 08-31-01 Time: 0920
Initiated by: [Signature]
COC/RFA Numbers: B01-058-252

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

1. <input checked="" type="radio"/> N	Sample received in undamaged condition.	5. <input checked="" type="radio"/> N	Sample volume sufficient for analysis.
2. <input checked="" type="radio"/> N	Sample received within 4°C ± 2°C* Record temperature: <u>5</u>	6. <input checked="" type="radio"/> N	Sample received with Chain of Custody.
3. <input type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/> N/A	Sample received with proper pH**.	7. <input checked="" type="radio"/> N	Chain of Custody matches sample IDs on containers.
4. <input checked="" type="radio"/> N	Sample received in proper containers.	8. <input checked="" type="radio"/> N	Custody seal received intact and tamper evident on cooler.
		9. <input checked="" type="radio"/> N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes: _____

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is".
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 08-31-01

Project Management Review: [Signature] Date: 9-4-01

**SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR
INITIALS AND THE DATE NEXT TO THAT ITEM**

SEVERN

TRENT

SERVICES

Lot No.: FIH310250

Condition Upon Receipt Form
St. Louis Laboratory

Client: Hanford

Date: 083101 Time: 0920

Quote No: 43018

Initiated by: [Signature]

Shipper/No: 4476546152 Fed Ex

COC/RFA Numbers: B01-058-249

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation): -250
-251

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in undamaged condition.	5. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample volume sufficient for analysis.
2. <input type="radio"/> Y <input checked="" type="radio"/> N	Sample received within 4°C ± 2°C* Record temperature: <u>18</u>	6. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody.
3. <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Sample received with proper pH**.	7. <input checked="" type="radio"/> Y <input type="radio"/> N	Chain of Custody matches sample IDs on containers.
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers.	8. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on cooler.
		9. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes:

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 083101

Project Management Review: [Signature] Date: 9.4.01

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM

METALS

BECHTEL HANFORD, INC.

Client Sample ID: B12C89-B

TCLP Metals

Lot-Sample #...: F2B160152-001
 Date Sampled...: 08/23/01
 Leach Date.....: 02/19/02

Date Received...: 02/14/02
 Leach Batch #...: P205011

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Prep Batch #...: 2051346						
Chromium	23.8 B	250	ug/L	SW846 6010B	02/20-02/21/02	ET8X21AA
		Dilution Factor: 2.5		MDL.....: 0.33		
Lead	79.6 B,J	250	ug/L	SW846 6010B	02/20-02/21/02	ET8X21AC
		Dilution Factor: 2.5		MDL.....: 1.6		

NOTE(S):

- Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311
- B Estimated result. Result is less than RL.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

St. Louis

BECHTEL HANFORD, INC.

Client Sample ID: B12DC1-A

TCLP Metals

Lot-Sample #....: F2B160152-002
Date Sampled....: 08/24/01
Leach Date.....: 02/19/02

Date Received...: 02/14/02
Leach Batch #...: P205011

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 2051346 Lead	23.0 B,J	250	ug/L	SW846 6010B MDL.....: 1.6	02/20-02/21/02	BT9DX1AA

Dilution Factor: 2.5

NOTE(S) :

- Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311
- B Estimated result. Result is less than RL.
 - J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

BECHTEL HANFORD, INC.

Client Sample ID: B12ML1-4A *4-A Dayer 2/27/02*

TCLP Metals

Lot-Sample #...: F2B160152-003
Date Sampled...: 08/26/01
Leach Date.....: 02/19/02

Date Received...: 02/14/02
Leach Batch #...: P205011

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS			ANALYSIS DATE	ORDER #
Prep Batch #...	2051346						
Lead	46.1 B,J	250	ug/L	SW846 6010B	02/20-02/21/02	ET9D21AA	
		Dilution Factor: 2.5		MDL.....: 1.6			

NOTE(S):
 Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311
 B Estimated result. Result is less than RL.
 J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

TCLP Metals

Client Lot #....: F2B160152

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #:	F2B190000-315	Prep Batch #....:	2051346			
Leach Date.....:	02/19/02	Leach Batch #...:	P205011			
Chromium	ND	250	ug/L	SW846 6010B	02/20-02/21/02	EVA361AF
		Dilution Factor: 2.5				
Lead	27.0 B	250	ug/L	SW846 6010B	02/20-02/21/02	EVA361AG
		Dilution Factor: 2.5				

NOTE(S) :

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

TCLP Metals

Client Lot #....: F2B160152

Matrix.....: SOLID

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: F2B200000-346 Prep Batch #....: 2051346							
Chromium	2500	2430	ug/L	97	SW846 6010B	02/20-02/21/02	EVDHT1AE
			Dilution Factor: 2.5				
Lead	2500	2540	ug/L	102	SW846 6010B	02/20-02/21/02	EVDHT1AF
			Dilution Factor: 2.5				

NOTE (S) :

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

MATRIX SPIKE SAMPLE DATA REPORT

TCLP Metals

Client Lot #....: F2B160152

Matrix.....: SOLID

Date Sampled....: 02/14/02

Date Received...: 02/15/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F2B180140-001 Prep Batch #....: 2051346									
Leach Date.....: 02/19/02 Leach Batch #...: P205011									
Chromium									
	1.3	12500	11200	ug/L	90		SW846 6010B	02/20-02/21/02	ET9NA1AV
	1.3	12500	11400	ug/L	91	1.7	SW846 6010B	02/20-02/21/02	ET9NA1AW
Dilution Factor: 2.5									
Lead									
	29.9	12500	11900	ug/L	95		SW846 6010B	02/20-02/21/02	ET9NA1AX
	29.9	12500	12100	ug/L	97	1.8	SW846 6010B	02/20-02/21/02	ET9NA1A0
Dilution Factor: 2.5									

NOTE(S):

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

Review Comment Record (RCR)

1. Date
03/20/02

2. Review No.
BHI/QA2007

3. Project
200-TW 1&2

4. Page
Page 1 of 2

5. Document Number(s)/Title(s)
SDG No.: H03587

6. Program/Project/
Building Number
200 TW-1&2 - Soil
Sampling

7. Reviewer
Claude Stacey

8. Organization/Group
BHI/QA

9. Location/Phone
H0-16/372-9208

10. Agreement with indicated comment disposition(s)

11. CLOSED

17. Comment Submittal Approval:

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Oriinator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	General Chemistry, page 21 and Inorganic Page 27, CoC for sample B12C89A is for Radiological Counting Facility samples not Severn Trent.		correct correct	
2	General Chemistry Page 28 and Inorganic Page 35, Lab's CUR indicates that there was problems with the custody seals upon receipt at the lab. The validation report should describe the problem and what effect it will have on the validity of the associated data.		using correct (corrected per RW instructions) correct ✓	✓
3	Inorganic: Page 01 indicates that all samples were analyzed for metals specified by Note 1; whereas, page 10 and lab results indicate 5 of the 6 samples were analyzed per note 2 only. Also Page 01 indicates none of the samples were analyzed for TCLP lead; whereas, page 11 and lab results indicate samples B12C89-B, B12DC1-A, and B12ML4-A were analyzed for TCLP lead.		Correct pg 01 indicates sa B12C89-B was analyzed per note 1 whereas, page 10 & lab indicates note 2 only. ✓ 03/11/02	
4	General Chemistry and Inorganic Page 2, Holding Time section heading should be titled Holding Time/Preservation, since it also addresses the preservation problem.		Inorganic - correct watch - correct	
5	Inorganic: Page 03, Precision needs to designate that matrix spike duplicate RPD for Cr exceeded the 35% limit for samples B12C89-B and B12DC1-A. Page 46(?) indicates the RPD for Cr was 51% for prep batch 1247187.		correct	

Review Comment Record (RCR)

1. Date
03/20/02

2. Review No.
BHI/QA2007

3. Project
200-TW 1&2

4. Page
Page 2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6	General Chemistry: Page 11, sample B12ML4-A, TOC indicates result to be 30.5; however, the lab results show 541.	✓	correct	
7	General Chemistry: Precision, bottom of paragraph indicates aqueous RPD to be <35%. This should be <20%; although, aqueous samples should not be addressed since all the samples are nonaqueous.	✓	correct	
8	Radiochemistry: Page 10 should have the TDL for Cr-VI, 0.5, and designate that the units are mg/kg.	✓	correct	
9	Radiochemistry: This package also contains results for Cr-VI. The narratives for the various sections, i.e., holding times, need to address the Cr-VI.	✓	correct	

MAR 21 '02 03:22PM BHI S&D MANAGEMENT 509 372 9487

facsimile transmittal

To: Bruce Christian Fax: _____
From: Jeannette Duncan Date: 04-09-02 _____
Re: W03587 Pages: _____
CC: _____

Bruce -

Still have the attached comments to disposition on W03587. Claude is still not happy with item 3 and Rich's email is attached explaining his open issue, Please disposition these open items.

Jeannette

Review Comment Record (RCR)

1. Date
03/20/02

2. Review No.
BHI/QA2007

3. Project
200-TW 1&2

4. Page
Page 1 of 2

5. Document Number(s)/Title(s)

SDG No.: H03587

6. Program/Project/
Building Number
200 TW-1&2 - Soil
Sampling

7. Reviewer
Claude Stacey

8. Organization/Group
BHI/QA

9. Location/Phone
HO-16/372-9208

10. Agreement with indicated comment disposition(s)

11. CLOSED

17. Comment Submittal Approval:

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Oriinator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	General Chemistry, page 21 and Inorganic Page 27, CoC for sample B12C89A is for Radiological Counting Facility samples not Severn Trent.		<i>correct</i>	
2	General Chemistry Page 28 and Inorganic Page 35, Lab's CUR indicates that there was problems with the custody seals upon receipt at the lab. The validation report should describe the problem and what effect it will have on the validity of the associated data.		<i>more correct (corrected per RW instructions) correct</i>	✓
3	Inorganic: Page 01 indicates that all samples were analyzed for metals specified by Note 1; whereas, page 10 and lab results indicate 5 of the 6 samples were analyzed per note 2 only. Also Page 01 indicates none of the samples were analyzed for TCLP lead; whereas, page 11 and lab results indicate samples B12C89-B, B12DC1-A, and B12ML4-A were analyzed for TCLP lead.		<i>Correct pg 01 indicates Sr B12C89-B was analyzed per Note whereas, page 10 & lab indicates Note 2 only.</i>	
4	General Chemistry and Inorganic Page 2, Holding Time section heading should be titled Holding Time/Preservation, since it also addresses the preservation problem.		<i>Inorganic - correct watch - correct</i>	
5	Inorganic: Page 03, Precision needs to designate that matrix spike duplicate RPD for Cr exceeded the 35% limit for samples B12C89-B and B12DC1-A. Page 46(?) indicates the RPD for Cr was 51% for prep batch 1247187.		<i>correct</i>	

MAR 21 '02 03:21PM BHI S&D MANAGEMENT 509 372 9487

Review Comment Record (RCR)

1. Date
03/20/02

2. Review No.
BHVQA2007

3. Project
200-TW 1&2

4. Page
Page 2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6	General Chemistry: Page 11, sample B12ML4-A, TOC indicates result to be 30.5; however, the lab results show 54).		✓ <i>Carve Kc</i>	
7	General Chemistry: Precision, bottom of paragraph indicates aqueous RPD to be <35%. This should be <20%; although, aqueous samples should not be addressed since all the samples are nonaqueous.		✓ <i>Carve Kc</i>	
8	Radiochemistry: Page 10 should have the TDL for Cr-VI, 0.5, and designate that the units are mg/kg.		✓ <i>Carve Kc</i>	
9	Radiochemistry: This package also contains results for Cr-VI. The narratives for the various sections, i.e., holding times, need to address the Cr-VI.		✓ <i>Carve Kc</i>	

Duncan, Jeanette M

From: Fukumoto, Joyce A
Sent: Thursday, April 04, 2002 12:40 PM
To: Duncan, Jeanette M
Subject: FW: Validation Package SDG W03587 Validator Response

-----Original Message-----

From: Weiss, Richard L
Sent: Thursday, April 04, 2002 11:58 AM
To: Fukumoto, Joyce A
Subject: RE: Validation Package SDG W03587 Validator Response

Joyce,

The validator response to bullets 1 & 3 below are acceptable. Regarding bullet 2 (bolded), the SDR directs the validator to apply a "J" qualifier to all nitrate, nitrite, and phosphate results. This was not done for Nitrite analyses. If the validator needs to discuss this, have him call me please.

Rich

-----Original Message-----

From: Weiss, Richard L
Sent: Wednesday, March 20, 2002 2:28 PM
To: Fukumoto, Joyce A
Subject: Validation Package Comments for SDG W03587

Joyce,

Here are my comments from review of the validation packages for SDG W03587:

Radiochemistry - No Comments

- Inorganic - Due to an oversight, The MS/MSD data for prep batch 1254213 was not provided initially. The prep batch date has been obtained and transmitted to the validator. Please revise validation using provided information.
- **Wet chem - Validation direction from the SAF regarding short hold-time analytes determined using IC method 300.0 is being revised. An SDR is being generated and will be provided to the validator on issuance. Please revise validation documentation based on direction in the SDR.**
- Pg 3, 4, 9 & 11; Matrix spike recoveries below 30% require application of "R" qualifier to any non-detect results. Total cyanide result (ND) was incorrectly qualified (J) for sample B12ML4-A. Revise validation documentation to reflect application of "R" qualifier to this sample analyte.

Let me know if you have any questions.

Rich

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Wednesday, April 10, 2002 9:58 AM
To: 'bchristian@techlawinc.com'
Cc: Duncan, Jeanette M
Subject: Clarification for Valdation of Anions for SDG W03587

Bruce,

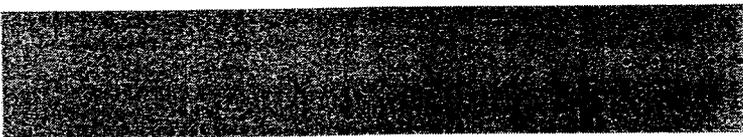
This is clarification for the SDR (B02-084) generated for the anion validation for SDG W03587. Do not validate the results for Nitrate, Nitrite, and Phosphate analyzed by method 300.0. Apply a "J" qualifier to those results and note actual analytical hold-times achieved by the laboratory in the validation case narrative.

Let me know if you need anything else.

Rich

facsimile transmittal

To: Bruce Christian Fax: _____
From: Joyce Fukumoto Date: 3-21-02 _____
Re: W03587 Pages: 4 _____
CC:



Fukumoto, Joyce A

From: Weiss, Richard L
Sent: Wednesday, March 20, 2002 2:28 PM
To: Fukumoto, Joyce A
Subject: Validation Package Comments for SDG W03587

Joyce,

Here are my comments from review of the validation packages for SDG W03587:

Radiochemistry - No Comments

Inorganic - Due to an oversight, The MS/MSD data for prep batch 1254213 was not provided initially. The prep batch date has been obtained and transmitted to the validator. Please revise validation using provided information.

Wet chem - Validation direction from the SAF regarding short hold-time analytes determined using IC method 300.0 is being revised. An SDR is being generated and will be provided to the validator on issuance. Please revise validation documentation based on direction in the SDR.

Pg 3, 4, 9 & 11; Matrix spike recoveries below 30% require application of "R" qualifier to any non-detect results. Total cyanide result (ND) was incorrectly qualified (J) for sample B12ML4-A. Revise validation documentation to reflect application of "R" qualifier to this sample analyte.

Let me know if you have any questions.

Rich

<h1>Review Comment Record (RCR)</h1>	1. Date 03/20/02	2. Review No. BHI/QA2007
	3. Project 200-TW 1&2	4. Page Page 1 of 2

5. Document Number(s)/Title(s) SDG No.: H03587	6. Program/Project/ Building Number 200 TW-1&2 - Soil Sampling	7. Reviewer Claude Stacey	8. Organization/Group BHI/QA	9. Location/Phone H0-16/372-9208
---	---	----------------------------------	-------------------------------------	---

17. Comment Submittal Approval: 10. Agreement with indicated comment disposition(s) 11. CLOSED

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Originator

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	General Chemistry, page 21 and Inorganic Page 27, CoC for sample B12C89A is for Radiological Counting Facility samples not Severn Trent.			
2	General Chemistry Page 28 and Inorganic Page 35, Lab's CUR indicates that there was problems with the custody seals upon receipt at the lab. The validation report should describe the problem and what effect it will have on the validity of the associated data.			
3	Inorganic: Page 01 indicates that all samples were analyzed for metals specified by Note 1; whereas, page 10 and lab results indicate 5 of the 6 samples were analyzed per note 2 only. Also Page 01 indicates none of the samples were analyzed for TCLP lead; whereas, page 11 and lab results indicate samples B12C89-B, B12DC1-A, and B12ML4-A were analyzed for TCLP lead.			
4	General Chemistry and Inorganic Page 2, Holding Time section heading should be titled Holding Time/Preservation, since it also addresses the preservation problem.			
5	Inorganic: Page 03, Precision needs to designate that matrix spike duplicate RPD for Cr exceeded the 35% limit for samples B12C89-B and B12DC1-A. Page 46(?) indicates the RPD for Cr was 51% for prep batch 1247187.			

Review Comment Record (RCR)

1. Date
03/20/02

2. Review No.
BHI/QA2007

3. Project
200-TW 1&2

4. Page
Page 2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6	General Chemistry: Page 11, sample B12ML4-A, TOC indicates result to be 30.5; however, the lab results show 541.			
7	General Chemistry: Precision , bottom of paragraph indicates aqueous RPD to be <35%. This should be <20%; although, aqueous samples should not be addressed since all the samples are nonaqueous.			
8	Radiochemistry: Page 10 should have the TDL for Cr-VI, 0.5, and designate that the units are mg/kg.			
9	Radiochemistry: This package also contains results for Cr-VI. The narratives for the various sections, i.e., holding times, need to address the Cr-VI.			

SDR # B02-084
Revision #: 0
Date Initiated: 3/20/02

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200-TW-1 & 2 - Soil
Task ID: 1
Sampling Event: 100 B/C Effluent Pipeline & Proximity Site Remediation Activities – Other Solid

Laboratory: Severn Trent Laboratory - St. Louis

Task Manager: M.E. Todd

Sampling Information:

Number of Samples: *X 6 sig 3/21/02*
ID Numbers: B12C89-B, B12DC1-A, B12ML4-A, B12ML5-A, B12ML6-A, B12ML7
Matrix: Soil
Collection Date: 08/23/01 – 08/28/01

Issue Background:

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

Type: Clarification of Direction

Description: Clarification of Direction For Validation of Short Holding-Time Analytes Performed by EPA Method 300.0

Disposition:

Description: The Sampling Authorization Form currently directs the data validator to not validate Nitrate results analyzed using EPA Method 300.0. This is inappropriate for the project and does not address other short hold-time analytes analyzed by Method 300.0 (Nitrite, Phosphate). Revised direction to the data validator shall be, "Due to the radiological characteristics of the samples, short hold-times for Nitrate, Nitrite, and Phosphate analysis via IC Method 300.0 cannot be met. Apply a 'J' qualifier to these results and note actual hold-time achieved in the validation case narrative."

Justification: Applied "J" qualifiers are much more appropriate for the Nitrate, Nitrite, and Phosphate results for soil samples from this project.

Approval Signatures:

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

3/21/02

Date

M.E. Todd *M.E. Todd*
Task Manager (Print/Sign Name)

3/21/02

Date

Fukumoto, Joyce A

From: Weiss, Richard L
Sent: Wednesday, March 20, 2002 2:28 PM
To: Fukumoto, Joyce A
Subject: Validation Package Comments for SDG W03587

Joyce,

Here are my comments from review of the validation packages for SDG W03587:

Radiochemistry - No Comments

Inorganic - Due to an oversight, The MS/MSD data for prep batch 1254213 was not provided initially. The prep batch date has been obtained and transmitted to the validator. Please revise validation using provided information. *report revised* ✓

Wet chem - Validation direction from the SAF regarding short hold-time analytes determined using IC method 300.0 is being revised. An SDR is being generated and will be provided to the validator on issuance. Please revise validation documentation based on direction in the SDR. *can do* ✓

Pg 3, 4, 9 & 11; Matrix spike recoveries below 30% require application of "R" qualifier to any non-detect results. Total cyanide result (ND) was incorrectly qualified (J) for sample B12ML4-A. Revise validation documentation to reflect application of "R" qualifier to this sample analyte. *can do*

Let me know if you have any questions.

Rich

Review Comment Record (RCR)

1. Date
03/20/02

2. Review No.
BHI/QA2007

3. Project
200-TW 1&2

4. Page
Page 1 of 2

5. Document Number(s)/Title(s)
SDG No.: H03587

6. Program/Project/
Building Number
200 TW-1&2 - Soil
Sampling

7. Reviewer
Claude Stacey

8. Organization/Group
BHI/QA

9. Location/Phone
H0-16/372-9208

11. CLOSED

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Oriinator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	General Chemistry, page 21 and Inorganic Page 27, CoC for sample B12C89A is for Radiological Counting Facility samples not Severn Trent.		correct <i>KS</i>	
2	General Chemistry Page 28 and Inorganic Page 35, Lab's CUR indicates that there was problems with the custody seals upon receipt at the lab. The validation report should describe the problem and what effect it will have on the validity of the associated data.		Wrong comment (corrected per RW instructions) correct <i>KS</i>	✓
3	Inorganic: Page 01 indicates that all samples were analyzed for metals specified by Note 1; whereas, page 10 and lab results indicate 5 of the 6 samples were analyzed per note 2 only. Also Page 01 indicates none of the samples were analyzed for TCLP lead; whereas, page 11 and lab results indicate samples B12C89-B, B12DC1-A, and B12ML4-A were analyzed for TCLP lead.		Correct <i>KS</i>	
4	General Chemistry and Inorganic Page 2, Holding Time section heading should be titled Holding Time/Preservation, since it also addresses the preservation problem.		Inorganic - comment watch - comment	
5	Inorganic: Page 03, Precision needs to designate that matrix spike duplicate RPD for Cr exceeded the 35% limit for samples B12C89-B and B12DC1-A. Page 46(?) indicates the RPD for Cr was 51% for prep batch 1247187.		comment <i>KS</i>	

Review Comment Record (RCR)

1. Date
03/20/02

3. Project
200-TW 1&2

2. Review No.
BHI/QA2007

4. Page
Page 2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6	General Chemistry: Page 11, sample B12ML4-A, TOC indicates result to be 30.5; however, the lab results show 541.		<i>Carroll</i>	
7	General Chemistry: Precision, bottom of paragraph indicates aqueous RPD to be <35%. This should be <20%; although, aqueous samples should not be addressed since all the samples are nonaqueous.		<i>Carroll</i>	
8	Radiochemistry: Page 10 should have the TDL for Cr-VI, 0.5, and designate that the units are mg/kg.		<i>Carroll</i>	
9	Radiochemistry: This package also contains results for Cr-VI. The narratives for the various sections, i.e., holding times, need to address the Cr-VI.		<i>Carroll</i>	

SDR # B02-084
Revision #: 0
Date Initiated: 3/20/02

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200-TW-1 & 2 - Soil
Task ID: 1
Sampling Event: 100 B/C Effluent Pipeline & Proximity Site Remediation Activities – Other Solid

Laboratory: Severn Trent Laboratory - St. Louis

Task Manager: M.E. Todd

Sampling Information:

Number of Samples: *X 6 soil 3/21/02*

ID Numbers: B12C89-B, B12DC1-A, B12ML4-A, B12ML5-A, B12ML6-A, B12ML7

Matrix: Soil

Collection Date: 08/23/01 – 08/28/01

Issue Background:

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

Type: Clarification of Direction

Description: Clarification of Direction For Validation of Short Holding-Time Analytes Performed by EPA Method 300.0

Disposition:

Description: The Sampling Authorization Form currently directs the data validator to not validate Nitrate results analyzed using EPA Method 300.0. This is inappropriate for the project and does not address other short hold-time analytes analyzed by Method 300.0 (Nitrite, Phosphate). Revised direction to the data validator shall be, "Due to the radiological characteristics of the samples, short hold-times for Nitrate, Nitrite, and Phosphate analysis via IC Method 300.0 cannot be met. Apply a 'J' qualifier to these results and note actual hold-time achieved in the validation case narrative."

Justification: Applied "J" qualifiers are much more appropriate for the Nitrate, Nitrite, and Phosphate results for soil samples from this project.

Approval Signatures:

S. J. Trent

[Signature]
Project Coordinator (Print/Sign Name)

3/21/02

Date

M.E. Todd

[Signature]
Task Manager (Print/Sign Name)

3/21/02

Date

FAX: (509) 372-9487

.....
facsimile transmission

To: Bruce Christian Fax: _____
From: Joyce Fukumoto Date: 3-21-02
Re: W03587 Pages: 4
CC: _____

.....
[Redacted]

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Wednesday, March 13, 2002 1:14 PM
To: Duncan, Jeanette M
Cc: Kessner, Joan H
Subject: FW: SDG W03587 Rad Validation IR#3

This has since become a non-issue.

Rich

-----Original Message-----

From: Christian, Bruce [<mailto:BChristian@TechLawInc.com>] <[mailto:\[mailto:BChristian@TechLawInc.com\]](mailto:[mailto:BChristian@TechLawInc.com])>
Sent: Tuesday, March 12, 2002 12:59 PM
To: 'Weiss, Richard L'
Subject: RE: SDG W03587 Rad Validation IR#3

I'll double check the procedure, but under level 'C' I don't calculate or check calculations, checking calculations is level 'D' or 'E'.

-----Original Message-----

From: Weiss, Richard L
To: Duncan, Jeanette M; 'bchristian@techlawinc.com'
Cc: Kessner, Joan H
Sent: 3/12/02 1:08 PM
Subject: SDG W03587 Rad Validation IR#3

Bruce,
This lab requested that they be allowed to report replicate error ratios (RER) in place of RPDs. This was granted and will be incorporated into future revisions of the SOW to the labs. I don't have a plan at this time to revise the validation procedure to incorporate RER, but probably will go that way in a year or so. In the meantime, calculate RPDs as per the validation procedure and proceed with validation. Call me if you have any questions (509-372-9592).

Rich

FAX

TECHLAW, INC.

3115 Loma Court
Tenino, WA 98589
509-521-6693

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 1 January 1998

Information Request #3

W03587-Radiochemistry

For the majority of the rad analytes, the lab reports a 'replicate error ratio' instead of an RPD.
Did the lab calculate an RPD??

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Tuesday, March 12, 2002 10:09 AM
To: Duncan, Jeanette M; 'bchristian@techlawinc.com'
Cc: Kessner, Joan H
Subject: SDG W03587 Rad Validation IR#3

Bruce,

This lab requested that they be allowed to report replicate error ratios (RER) in place of RPDs. This was granted and will be incorporated into future revisions of the SOW to the labs. I don't have a plan at this time to revise the validation procedure to incorporate RER, but probably will go that way in a year or so. In the meantime, calculate RPDs as per the validation procedure and proceed with validation. Call me if you have any questions (509-372-9592).

Rich

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Wednesday, March 13, 2002 1:14 PM
To: Duncan, Jeanette M
Cc: Kessner, Joan H
Subject: FW: SDG W03587 Rad Validation IR#3

This has since become a non-issue.

Rich

-----Original Message-----

From: Christian, Bruce [<mailto:BChristian@TechLawInc.com>] <[mailto:\[mailto:BChristian@TechLawInc.com\]](mailto:[mailto:BChristian@TechLawInc.com])>
Sent: Tuesday, March 12, 2002 12:59 PM
To: 'Weiss, Richard L'
Subject: RE: SDG W03587 Rad Validation IR#3

I'll double check the procedure, but under level 'C' I don't calculate or check calculations, checking calculations is level 'D' or 'E'.

-----Original Message-----

From: Weiss, Richard L
To: Duncan, Jeanette M; 'bchristian@techlawinc.com'
Cc: Kessner, Joan H
Sent: 3/12/02 1:08 PM
Subject: SDG W03587 Rad Validation IR#3

Bruce,

This lab requested that they be allowed to report replicate error ratios (RER) in place of RPDs. This was granted and will be incorporated into future revisions of the SOW to the labs. I don't have a plan at this time to revise the validation procedure to incorporate RER, but probably will go that way in a year or so. In the meantime, calculate RPDs as per the validation procedure and proceed with validation. Call me if you have any questions (509-372-9592).

Rich

FAX

TECHLAW, INC.

**3115 Loma Court
Tenino, WA 98589
509-521-6693**

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 12 February 2002

Information Request #2

W03587 - Metals

The matrix spike for preparation batch 1254213 is not in the package although the case narrative says that one was run.

RE: Information Needs for SDG W03587 Validation.

Fukumoto, Joyce A

From: Fukumoto, Joyce A
Sent: Tuesday, March 19, 2002 3:47 PM
To: 'BCHRISTIAN@TECHLAWINC.COM'
Subject: FW: Information Needs for SDG W03587 Validation.
Importance: High

Bruce,

If you have any questions, please call.

Thanks
Joyce
372-9262

-----Original Message-----

From: Weiss, Richard L
Sent: Tuesday, March 19, 2002 3:32 PM
To: Fukumoto, Joyce A
Subject: FW: Information Needs for SDG W03587 Validation.
Importance: High

Joyce,

Would you please forward on the attached file (or fax a hardcopy) to Bruce Christian. He will need this information to correct the metals validation package package for this SDG.

Rich

-----Original Message-----

From: Kessner, Joan H
Sent: Monday, March 11, 2002 7:45 AM
To: Weiss, Richard L
Subject: FW: Information Needs for SDG W03587 Validation.
Importance: High

Rich---
Would you please let me know if this address the concern.
Joan

Duncan, Jeanette M

From: Kessner, Joan H
Sent: Wednesday, February 13, 2002 2:35 PM
To: Duncan, Jeanette M
Subject: FW: validation help on W03587 chem

Importance: High

Jeanette---

I sent this to the wrong Bruce and now I noticed that I don't have Bruce's email.....
Please forward this to him.

Thanks,
Joan

-----Original Message-----

From: Kessner, Joan H
Sent: Wednesday, February 13, 2002 9:26 AM
To: Duncan, Jeanette M; 'bruce gillespie'
Subject: FW: validation help on W03587 chem
Importance: High

Does this help at all??

-----Original Message-----

From: mward@stl-inc.com [mailto:mward@stl-inc.com]
Sent: Wednesday, February 13, 2002 9:21 AM
To: JHKessne@mail.bhi-erc.com
Cc: jwaddell@stl-inc.com; jcarnes@stl-inc.com
Subject: RE: validation help on W03587 chem
Importance: High

We reported/invoiced the QC from batch 1247187. We did run another set of (for "batch")QC, but did not report because we only needed 1 set for the SDG. Did your report contain the MS/MSD for batch 124187? Sometimes the copy machine "eats" the data sheets.

-----Original Message-----

From: Kessner, Joan H [mailto:JHKessne@mail.bhi-erc.com]
Sent: Wednesday, February 13, 2002 10:55 AM
To: Waddell, Jackie; Carnes, Jodie; Ward, Marti
Subject: validation help on W03587 chem

Folks---

Have a validator question on SDG W03587 -

W03587 - metals

The matrix spike for preparation batch 1254213 is not in the package although the case narrative says that one was run.

Would you help fill in the blanks??

Thanks,
Joan

FAX

TECHLAW, INC.

3115 Loma Court
Tenino, WA 98589
509-521-6693

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 10 February 2002

Information Request #1

W03587 - RAD

The case narrative includes sample B12MLS-A in the SDG, but no data is included in the package.



ORIGINAL

SDR # B02-041

Revision #: 0

Date Initiated: 08/30/01

Dynes

SAMPLE DISPOSITION RECORD

SAF: B01-058

OU: 200-TW-1/2

Project ID: 200 TW 1&2

Task ID: 1

Sampling Event: 200-TW-1 & 2 - Soil

Laboratory: Severn Trent, Inc.

Task Manager: M. E. Todd

Sampling Information:

Number of Samples: 1

ID Numbers: B12ML5-A

Matrix: SOIL

Collection Date: 08/27/01

Issue Background:

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

Type: Other

Description: Sample Refused by Laboratory

Disposition:

Description: After performing the radiological screening analysis, the Severn Trent – Richland laboratory determined that the Cr-VI analysis bottle for the listed sample exceeded their radiological sample acceptance criteria. As a result, the Cr-VI sample bottle was returned to the ERC and the Cr-VI analysis was subsequently cancelled (see SDR B02-042) for the listed sample.

Justification: The Cr-VI analysis bottle for the listed sample could not be accepted by either laboratory that performs a Cr-VI analysis method accepted by the ERC.

Approval Signatures:

S. J. Trent *[Signature]* 11/3/02
Project Coordinator (Print/Sign Name) Date

M. E. Todd *[Signature]* 1/7/02
Task Manager (Print/Sign Name) Date

ORIGINAL
D Hayes

SDR # B02-042
Revision #: 0
Date Initiated: 08/30/01

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200 TW 1&2
Task ID: 1
Sampling Event: 200-TW-1 & 2 - Soil

Laboratory: Severn Trent, Inc.

Task Manager: M. E. Todd

Sampling Information:

Number of Samples: 1
ID Numbers: B12ML5-A
Matrix: SOIL
Collection Date: 08/27/01

Issue Background:

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

Type: Cancellation of Analyses

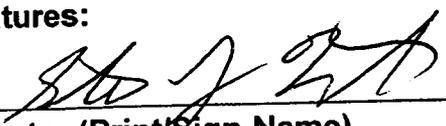
Description: Cr-VI Analysis Cancelled

Disposition:

Description: After performing the radiological screening analysis, the Severn Trent – Richland laboratory determined that the Cr-VI analysis bottle for the listed sample exceeded their radiological sample acceptance criteria (see SDR B02-041). As a result, the Cr-VI sample bottle was returned to the ERC and the Cr-VI analysis was subsequently cancelled for the listed sample.

Justification: The Cr-VI analysis was cancelled because neither laboratory that performs a Cr-VI analysis method accepted by the ERC could accept the listed sample.

Approval Signatures:

S. J. Trent		1/3/02
Project Coordinator (Print/Sign Name)		Date
M. E. Todd		1/7/02
Task Manager (Print/Sign Name)		Date

SDR # B01-101
Revision #: 1
Date Initiated: 08/09/01

ORIGINAL

Notes

SAMPLE DISPOSITION RECORD

Project ID: **200 TW 1&2**
Task ID: **1**
Sampling Event: **200-TW-1 & 2 - Soil**

Laboratory: **TMA/RECRA; RCF; Severn Trent, Inc.**

Task Manager: **M. E. Todd**

Sampling Information:

Number of Samples: **23**
ID Numbers: **B12DC0, B12DC1, B12DB8, B12DB9, B12C88, B12C89, B12C63, B12C64,**

B12ML4, B12ML5, B12ML6, B12DC0-A, B12DC1-A, B12DB8-A, B12DB9-A, B12C88-A, B12C89-A, B12C89-B, B12C63-A, B12C64-A, B12ML4-A, B12ML5-A, B12ML6-A

Matrix: **SOIL**

Collection Date: **08/03/01 - 08/27/01**

Issue Background:

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

Type: **Other**

Description: **Samples Directed to Different Laboratory and Relabeled**

Disposition:

Description: **The chemical analyses for the listed samples were originally intended to be performed at the Lionville Laboratory. However because of the radioactivity associated with the samples, they were directed to the Severn Trent - St. Louis Laboratory. Samples redirected to the Severn Trent - St. Louis Laboratory were relabeled as follows:**

Original Sample Number

- B12DC0
- B12DC1
- B12DB8
- B12DB9
- B12C88
- B12C63
- B12C64
- B12ML4

New Sample Number

- B12DC0-A
- B12DC1-A
- B12DB8-A
- B12DB9-A
- B12C88-A
- B12C63-A
- B12C64-A
- B12ML4-A

Original Sample Number

New Sample Number

B12ML5

B12ML5-A

B12ML6

B12ML6-A

C Dayes 11/7/02

Dayes C 11/7/02

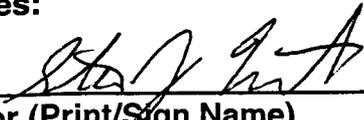
In addition, for sample number B12~~D~~89, the bottle for Cr-VI analysis was relabeled as B12~~D~~89-A and routed to the RCF for radiological screening analyses. This same bottle was subsequently relabeled as B12~~D~~89-B and routed to the Severn Trent – Richland Laboratory for Cr-VI analysis.

C Dayes 11/7/02

Justification: The listed samples did not meet the sample acceptance criteria at the Lionville Laboratory, requiring that they be redirected to the Severn Trent – St. Louis Laboratory for chemical analysis. In addition, relabeling of the samples was necessary because a sample cannot be assigned to more than one laboratory due to SDT referential integrity rules.

Approval Signatures:

S. J. Trent

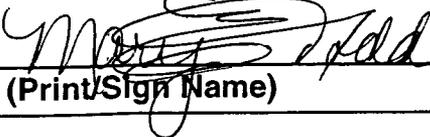


11/3/02

Project Coordinator (Print/Sign Name)

Date

M. E. Todd



11/7/02

Task Manager (Print/Sign Name)

Date