

**RECEIVED**  
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**EDMC**



**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. 100H AREA FULL

B00-030

Lot #: F2L110164

SDG #: W03923

Joan Kessner

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

SEVERN TRENT LABORATORIES, INC.

MARTI WARD  
Project Manager

December 26, 2002



## CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated  
 3190 George Washington Way  
 Richland, Washington 99352  
 December 30, 2002

Attention: Joan Kessner

Project Number	:	40232
SAF	:	B00-030
SDG	:	W03923
Number of Samples	:	one
Sample Matrix	:	Soil
Data Deliverable	:	Summary
Date SDG Closed	:	December 9, 2002

### II. Introduction

On December 11, 2002, one (1) "soil" sample was received by STL--St. Louis for chemical analysis. The sample was received at the St. Louis lab within temperature criteria. Review the COC and CUR forms for variations in sample condition or temperature upon arrival at the lab. 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 incomplete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see attached Method Summary Sheet

Deviation from Request: metals run by 6010B instead 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  
December 30, 2002  
Project Number: 40232  
SDG: W03923  
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.

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

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.

There were no comments or non-conformances associated with the metals data.

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**

F2L110164

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
FEK41	001	J00BY9	12/05/02	10:15

**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**

F2L110164

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B

**References:**

- MCAWW "Methods for Chemical Analysis of Water and Wastes",  
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.

PSL20300  
Page 1

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

Run Date: 12/11/02  
Time: 11:31:00  
User Id.: AKERSK

CLIENT: 127642 BECHTEL HANFORD, INC.  
PROJECT MANAGER: MARTI WARD  
PROJECT #: 100H AREA FULL  
REPORT TO: Joan Kessner  
P.O. NUMBER: MRC-SBB-A-19981  
SITE: B00-030  
AMOUNT REC'D: 60G  
STORAGE LOC: S6  
LOT COMMENTS: Sample control: Use Richland receipt da  
MATRIX: SOLID  
USAF MATRIX:  
SAMPLE ID: J00BY9  
QC PACKAGE: Special Report - see checklist  
SAMPLE COMMENTS:

QUOTE/SAR #: 40232  
LAB ID: F-2L110164-001  
WORK ORDER: FEK41  
RECEIVING DATE: 12/11/02  
SAMPLING DATE: 12/05/02  
ANALYTICAL DUE DATE: 12/30/02N  
REPORT DUE DATE: 1/02/03  
PRIORITY: 18  
SAMPLING TIME: 10:15  
RECEIVING TIME: 9:00

SDG# : W03923

Beginning Depth: .00 Ending Depth: .00

\*\*\*\*\* ANALYSIS \*\*\*\*\*

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
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Inductively Coupled Plasma (6010B Trace)	06	12/11/02	0/00/00	6/03/03
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METALS, TOTAL - Soils

MT6010\_S CR

(A-46-QM-01) FEK41

Protocol: A

QC Program: STANDARD TEST SET

PSL20300  
Page 1

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

Run Date: 12/11/02  
Time: 11:31:00  
User Id.: AKERSK

CLIENT: 127642 BECHTEL HANFORD, INC.  
PROJECT MANAGER: MARTI WARD  
PROJECT #: 100H AREA FULL  
REPORT TO: Joan Kessner  
P.O. NUMBER: MRC-SBB-A-19981  
SITE: B00-030  
AMOUNT REC'D: 60G  
STORAGE LOC: S6  
LOT COMMENTS: Sample control: Use Richland receipt da  
MATRIX: SOLID  
USAF MATRIX:  
SAMPLE ID: J00BY9  
QC PACKAGE: Special Report - see checklist  
SAMPLE COMMENTS:

QUOTE/SAR #: 40232  
LAB ID: F-2L110164-001-D  
WORK ORDER: FEK41 MSD  
RECEIVING DATE: 12/11/02  
SAMPLING DATE: 12/05/02  
ANALYTICAL DUE DATE: 12/30/02N  
REPORT DUE DATE: 1/02/03  
PRIORITY: 18  
SAMPLING TIME: 10:15  
RECEIVING TIME: 9:00

SDG# : W03923

Beginning Depth: .00 Ending Depth: .00

\*\*\*\*\* ANALYSIS \*\*\*\*\*

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S CR (A-46-QM-01) FEK41	06	12/11/02	0/00/00	6/03/03

Protocol: A QC Program: STANDARD TEST SET

PSL20300  
Page 1

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

Run Date: 12/11/02  
Time: 11:31:00  
User Id.: AKERSK

CLIENT: 127642 BECHTEL HANFORD, INC.  
PROJECT MANAGER: MARTI WARD  
PROJECT #: 100H AREA FULL  
REPORT TO: Joan Kessner  
P.O. NUMBER: MRC-SBB-A-19981  
SITE: B00-030  
AMOUNT REC'D: 60G  
STORAGE LOC: S6  
LOT COMMENTS: Sample control: Use Richland receipt da  
MATRIX: SOLID  
USAF MATRIX:  
SAMPLE ID: J00BY9  
QC PACKAGE: Special Report - see checklist  
SAMPLE COMMENTS:

QUOTE/SAR #: 40232  
LAB ID: F-2L110164-001-S  
WORK ORDER: FEK41 MS  
RECEIVING DATE: 12/11/02  
SAMPLING DATE: 12/05/02  
ANALYTICAL DUE DATE: 12/30/02N  
REPORT DUE DATE: 1/02/03  
PRIORITY: 18  
SAMPLING TIME: 10:15  
RECEIVING TIME: 9:00

SDG# : W03923

Beginning Depth: .00 Ending Depth: .00

\*\*\*\*\* ANALYSIS \*\*\*\*\*

	<u>WRK</u>	<u>REQUEST</u>	<u>EXTRACTION</u>	<u>ANALYSIS</u>
	<u>LOC</u>	<u>DATE</u>	<u>EXP DATE</u>	<u>EXP DATE</u>
. Inductively Coupled Plasma (6010B Trace)	06	12/11/02	0/00/00	6/03/03
METALS, TOTAL - Soils				
MT6010_S CR				
(A-46-QM-01) FEK41	Protocol: A	QC Program:	STANDARD TEST SET	

LOT# F2110164

WF 5252

SRL St. Louis

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						
Collector Stankovich/Mitchell	Company Contact Milos Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ					
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-10	SAF No. B00-030						
Ice Chest No. ERC 01-063	Field Logbook No. EL-1535-7	COA R16F102000	Method of Shipment Fed Ex					
Shipped To Severn Trent Incorporated, Richland St. Louis	Offsite Property No. #030 096	Bill of Lading/Air Bill No. RC 101						
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Special Handling and/or Storage None		Preservation	None	Cool 4C	None	None	None	None
		Type of Container	uG	uG	P	uG	P	
		No. of Container(s)	1	1	1	1	1	
		Volume	60mL	60mL	100mL	60mL	20mL	
WO 3923		See Item (1) in Special Instructions	Chemical Max - 7196	See Item (2) in Special Instructions	See Item (3) in Special Instructions	Activity Beta		
SAMPLE ANALYSIS								
Sample No.	Matrix *	Sample Date	Sample Time					
J00BY9	SOIL	12-5-02	1015	✓				
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	(1) ICP Metals - 6010A (Supratrac) (Manganese, Chromium, ...) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152)  Personnel not available to relinquish samples from the 3728 Ref # 3B on 12/19/02				
<del>...</del>	12-5-02	30/3728	12-5-02 1500					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
3B 3728	12-9-02 0900	...	12-9-02					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
ERC	0900	Fed Ex						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Fed Ex		...	12-11-02 0900					
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						
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By						

Contractor <b>BHI-HANFORD</b>	<b>OFF-SITE PROPERTY CONTROL</b>	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) <b>A030 096</b>
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**PART I - TO BE COMPLETED BY ORIGINATOR**

Engineering Support	Field Analytical Support	Field Sampling Support
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The following items are to be shipped from  Contractor  Vendor

Routing **FED EX**  Prepaid  Collect

Shipped to <b>SEVERN TRENT INC. 13715 RIDER TRAIL NORTH EARTH CITY, MO 63045 ATTENTION: MARTI WARD</b>	Off-site Custodian
Company Address City Country <b>(314) 298-8566</b>	On-site Custodian <b>HID</b>

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 of 1	7 163	<b>ERC 01-063</b> <b>SRF B00-030 (1)</b> <b>Air Bill # 7912 4908 4779</b>	1 total

Classified 
  Unclassified 
  Shipped Under DOE Contract 
  Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

Required for Project Work. List Project No. \_\_\_\_\_  
 Business Trip  
 Off-site Assignment  
 Shipment to Subcontractor. List Subcontract No. \_\_\_\_\_  
 Other (Please specify) \_\_\_\_\_

**ENVIRONMENTAL SAMPLES PACKAGED IN  
POLYCOOLER WITH WET ICE AND DRY SORB**

**CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.**

RM Clearance for Public Release <b>NA</b>	RM Survey No. <b>NA</b>	Date
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Location of and Contact for Property (Name/Phone No./Bldg./Area)  
**RIKKI THOREN/521-8003/3728 BUILDING/300 AREA**

Date Ready for Shipment <b>12-9-02</b>	Cost Code to be Charged <b>R16F102000</b>	Approximate Date This Property will be Returned
Originated By <i>R. Fellner</i>	Date <b>12-9-02</b>	Authorized By
Property Representative Signature <i>R. Fellner</i>	Date <b>12-7-02</b>	Property Management Approval

**PART II - TO BE COMPLETED BY SHIPPING**

Authorized Shipping Signature <i>CR Thoren</i>	Date <b>12-09-02</b>
---	-------------------------

**PRIORITY OVERNIGHT - Tuesday Delivery**

LOT# F2L110164 A-6003-091 (03/01)

From: SHIPPING DEPT (509)376-7768  
FLUOR HANFORD  
2355 STEVENS DR BLDG 1162  
  
RICHLAND, WA, 98352



FedEx.

To: SEVERN TRENT INC. (314)298-8566

13715 RIDER TRAIL NORTH

SHIP DATE: 09DEC02  
WEIGHT: 7 LBS

EARTH CITY, MO, 63045

Ref: R16F102000



DELIVERY ADDRESS BARCODE (POSTNET)

TRK # 7912 4908 4779

FedEx PRIORITY OVERNIGHT

TUE  
A1

Deliver by:  
10DEC02

63045-MO-US

XX ALNA



### Shipping Label



1. Use the "Print" feature from your browser to send this page to your laser printer...
2. Fold the printed page along the horizontal line.
3. Place label in air waybill pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

### Shipment Details

To print a copy of the shipment information for your records, please click "Shipment Details".



### Ship a New Package



Use of this system constitutes your agreement to the service conditions in the current FedEx service Guide, available upon request. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual



Lot No: F2L110164  
W03923

Condition Upon Receipt Form  
St. Louis Laboratory

Client: Rockland

Date: 12.11.02 Time: 0900

Quote No: 40232

Initiated by: [Signature]

Shipper/No: FedEx (below)

COC/RFA Numbers: W03-02-109, W03-01-51

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

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 4C ± 2C° Record temperature: <u>3° 4° 5° 3° 2° 3° 3°</u>	6. <input checked="" type="radio"/> N	Sample received with Chain of Custody.
3. <input checked="" type="radio"/> N N/A	Sample received with proper pH <sup>pp</sup> .	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:

<u>791992756089</u>	<u>W03-012-113</u>
<u>791992756137</u>	<u>102373</u>
<u>791992756067</u>	<u>W03-012-2</u>
<u>790650947620</u>	<u>W03-012-13</u>
<u>790650947674</u>	<u>W03-011-51</u>
<u>791249084779 ✓</u>	<u>W03-012-109</u>
<u>791250361622</u>	<u>503-012-7</u>
	<u>802-030-32</u>
	<u>800-030-79 ✓</u>

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: 12.11.02

Project Management Review: [Signature] Date: 12.11.02

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: J00BY9

TOTAL Metals

Lot-Sample #...: F2L110164-001

Matrix.....: SOLID

Date Sampled...: 12/05/02

Date Received...: 12/09/02

% Moisture.....: 6.3

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
		<u>LIMIT</u>	<u>UNITS</u>		<u>ANALYSIS DATE</u>	<u>ORDER #</u>
Prep Batch #...: 2346314						
Chromium	9.4	1.1	mg/kg	SW846 6010B	12/12-12/16/02	FEK411AA
		Dilution Factor: 1		MOL.....: 0.12		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #....: F2L110164  
 Date Sampled....: 12/05/02

Date Received...: 12/09/02

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
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MS Lot-Sample #: F2L110164-001 Prep Batch #....: 2346314

‡ Moisture.....: 6.3

Chromium

9.4	21.3	29.9	mg/kg	96		SW846 6010B	12/12-12/16/02	FEK411AC
9.4	21.3	29.3	mg/kg	93	2.0	SW846 6010B	12/12-12/16/02	FEK411AD

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.

## METHOD BLANK REPORT

## TOTAL Metals

Client Lot #...: F2L110164

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 #: F2L120000-314				Prep Batch #...: 2346314		
Chromium	ND	1.0	mg/kg	SW846 6010B	12/12-12/16/02	FEN1L1AD
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F2L110164

Matrix.....: SOLID

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
------------------	---------------------	------------------------	--------------	-----------------------	---------------	-----------------------------------	---------------------

LCS Lot-Sample#: F2L120000-314 Prep Batch #...: 2346314

Chromium	82.6	87.5	mg/kg	106	SW846 6010B	12/12-12/16/02	FEN11LAG
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Dilution Factor: 1

NOTE(S):

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