0056670 W03636

SEVERN TRENT SERVICES

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CERTIFICATE OF ANALYSIS

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

January 28, 2002

Attention: Joan Kessner

SAF Number	:	B02-006
Date SDG Closed	:	November 19, 2001
Number of Samples	:	Two (2)
Sample Type	:	Soil
SDG Number	:	W03636
Data Deliverable	:	45-Day / Summary

RECEIVED
APR 16 2002
EDMC

I. Introduction

Between November 5, 2001 and November 6, 2001, two soil samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

STLR ID#	BHI ID#	MATRIX	DATE OF RECEIPT
ENDN7	B13CR8	SOIL	11/05/01
ENE46	B13D82	SOIL	11/06/01

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
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
Gross Alpha by method RICH-RC-5020
Gross Beta by method RICH-RC-5020
Total Strontium by method RICH-RC-5006
Total Uranium
Total Uranium by method RICH-RC-5015

III. Quality Control

The analytical results for each analysis performed under SDG W03636 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 LCS, batch blank, sample and sample duplicate (B13D82) results are within contractual requirements.

Neptunium-237 by method RICH-RC-5009:
The LCS, batch blank, sample and sample duplicate (B13CR8) results are within contractual requirements.

Plutonium-238, -239/40 by method RICH-RC-5010:
The LCS, batch blank, sample and sample duplicate (B13D82) results are within contractual requirements.

Thorium-228, -230, -232 by method RICH-RC-5084:
The LCS, batch blank, sample and sample duplicate (B13D82) results are within contractual requirements.

Uranium-234, -235, -238 by method RICH-RC-5079:
The LCS, batch blank, sample and sample duplicate (B13D82) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017:

The LCS, batch blank, sample and sample duplicate (B13CR8) results are within contractual requirements.

Gas Proportional Counting

Gross Alpha by method RICH-RC-5020:

The LCS, batch blank, sample and sample duplicate (B13CR8) results are within contractual requirements.

Gross Beta by method RICH-RC-5020:

The LCS, batch blank, sample and sample duplicate (B13D82) results are within contractual requirements.

Total Strontium by method RICH-RC-5006:

Sample B13D82 failed initial analysis; no recovery from separation. The sample was reanalyzed. The LCS, batch blank, sample and sample duplicate (B13CR8) results from the initial analysis batch are within contractual requirements. The LCS batch blank, sample and sample duplicate results from the reanalysis batch are within contractual requirements.

Total Uranium

Total Uranium by method RICH-RC-5015:

The LCS, batch blank, sample, sample duplicate (B13D82) and sample matrix spike (B13CR8) 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

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) ***u_c - Combined Uncertainty.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, ***u_c the combined uncertainty.*** The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" *nominal detection limit. Often referred to the reporting level (RL)*
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers *associated with the result.*
Rst/TotUcert	*Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may* indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 28-Jan-02

Report No. : 18709

SDG No: W03636

Client ID	Work Order Number	Parameter	Result	+-	Uncertainty		Qual	Units	Yield	MDC|MDA	RER
B13CR8	ENDN71AD	PU-238	-7.94E-04	+-	1.1E-03	(2s)	U	pCi/g	68.00%	2.27E-02	
		PU239/40	9.11E-03	+-	1.4E-02	(2s)	U	pCi/g	68.00%	2.26E-02	
B13CR8	ENDN71AE	AM-241	-1.43E-03	+-	1.5E-03	(2s)	U	pCi/g	84.67%	2.39E-02	
B13CR8	ENDN71AA	U-234	9.64E-01	+-	2.6E-01	(2s)		pCi/g	67.62%	2.38E-02	
		U-235	6.14E-02	+-	4.8E-02	(2s)		pCi/g	67.62%	2.38E-02	
		U-238	9.38E-01	+-	2.6E-01	(2s)		pCi/g	67.62%	2.38E-02	
B13CR8	ENDN71AM	TOTAL-URANIUM	2.45E+00	+-	5.8E-01	(2s)		ug/g		7.29E-05	
B13CR8	ENDN71AG	TH-228	1.14E+00	+-	3.1E-01	(2s)		pCi/g	100.99%	1.74E-02	
		TH-230	8.83E-01	+-	2.4E-01	(2s)		pCi/g	100.99%	1.61E-02	
		TH-232	1.22E+00	+-	3.3E-01	(2s)		pCi/g	100.99%	2.37E-02	
B13CR8	ENDN71AJ	BETA	2.34E+01	+-	4.2E+00	(2s)		pCi/g	100.00%	3.55E+00	
B13CR8	ENDN71AH	ALPHA	1.32E+01	+-	6.1E+00	(2s)		pCi/g	100.00%	5.82E+00	
B13CR8	ENDN71AK	AM-241	2.82E-02	+-	2.5E-02	(2s)	U	pCi/g		3.63E-02	
		CO-60	-4.62E-03	+-	1.1E-02	(2s)	U	pCi/g		1.94E-02	
		CS-137	-1.25E-02	+-	1.1E-02	(2s)	U	pCi/g		1.79E-02	
		EU-152	-1.44E-02	+-	3.0E-02	(2s)	U	pCi/g		4.82E-02	
		EU-154	-3.67E-02	+-	3.6E-02	(2s)	U	pCi/g		5.76E-02	
		EU-155	1.61E-02	+-	3.0E-02	(2s)	U	pCi/g		4.94E-02	
		RA-228	6.53E-01	+-	1.1E-01	(2s)		pCi/g		7.05E-02	
B13CR8	ENDN71AC	STRONTIUM	7.79E-01	+-	2.4E-01	(2s)		pCi/g	57.70%	1.54E-01	
B13CR8	ENDN71AL	NP-237	1.28E-02	+-	1.9E-02	(2s)	U	pCi/g	57.67%	2.68E-02	
B13CR8 DUP	ENDN71AP	ALPHA	1.07E+01	+-	5.5E+00	(2s)		pCi/g	100.00%	5.67E+00	
B13CR8 DUP	ENDN71AQ	AM-241	5.03E-02	+-	3.0E-02	(2s)	U	pCi/g		4.37E-02	
		CO-60	-1.69E-03	+-	1.4E-02	(2s)	U	pCi/g		2.34E-02	
		CS-137	-7.40E-03	+-	1.3E-02	(2s)	U	pCi/g		2.20E-02	
		EU-152	4.02E-03	+-	5.6E-02	(2s)	U	pCi/g		6.01E-02	
		EU-154	-2.33E-02	+-	4.1E-02	(2s)	U	pCi/g		6.91E-02	
		EU-155	2.19E-02	+-	3.6E-02	(2s)	U	pCi/g		6.12E-02	
		RA-228	4.96E-01	+-	1.3E-01	(2s)		pCi/g		8.41E-02	
B13CR8 DUP	ENDN71AR	STRONTIUM	6.54E-01	+-	2.2E-01	(2s)		pCi/g	45.80%	1.84E-01	
B13CR8 DUP	ENDN71AT	NP-237	-4.30E-04	+-	8.6E-04	(2s)	U	pCi/g	71.80%	2.16E-02	
B13D82	ENE461AD	PU-238	5.60E-03	+-	1.1E-02	(2s)	U	pCi/g	60.15%	1.52E-02	
		PU239/40	0.00E+00	+-	1.4E-02	(2s)	U	pCi/g	60.15%	1.51E-02	

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rptSTLRchSaSum V3.81 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 28-Jan-02

Report No. : 18709

SDG No: W03636

Client ID	Work Order Number	Parameter	Result	+-	Uncertainty		Qual	Units	Yield	MDC|MDA	RER
B13D82	ENE461AE	AM-241	6.91E-03	+-	1.0E-02	(2s)	U	pCi/g	87.45%	1.45E-02	
B13D82	ENE461AA	U-234	7.48E-01	+-	2.1E-01	(2s)		pCi/g	72.36%	2.25E-02	
		U-235	3.32E-02	+-	3.4E-02	(2s)	U	pCi/g	72.36%	2.25E-02	
		U-238	9.30E-01	+-	2.5E-01	(2s)		pCi/g	72.36%	3.35E-02	
B13D82	ENE461AM	TOTAL-URANIUM	1.86E+00	+-	4.4E-01	(2s)		ug/g		7.29E-05	
B13D82	ENE461AG	TH-228	8.19E-01	+-	2.3E-01	(2s)		pCi/g	92.92%	2.37E-02	
		TH-230	8.51E-01	+-	2.4E-01	(2s)		pCi/g	92.92%	1.66E-02	
		TH-232	8.80E-01	+-	2.4E-01	(2s)		pCi/g	92.92%	1.11E-02	
B13D82	ENE461AJ	BETA	1.26E+02	+-	1.7E+01	(2s)		pCi/g	100.00%	3.45E+00	
B13D82	ENE461AH	ALPHA	6.12E+00	+-	4.2E+00	(2s)		pCi/g	100.00%	5.69E+00	
B13D82	ENE461AK	AM-241	2.59E-02	+-	7.5E-02	(2s)	U	pCi/g		1.25E-01	
		CO-60	2.01E-03	+-	1.3E-02	(2s)	U	pCi/g		2.23E-02	
		CS-137	7.56E-03	+-	1.3E-02	(2s)	U	pCi/g		2.21E-02	
		EU-152	-2.54E-02	+-	3.1E-02	(2s)	U	pCi/g		5.17E-02	
		EU-154	-1.44E-02	+-	4.2E-02	(2s)	U	pCi/g		7.12E-02	
		EU-155	2.84E-04	+-	4.2E-02	(2s)	U	pCi/g		6.92E-02	
		RA-228	7.28E-01	+-	1.3E-01	(2s)		pCi/g		7.60E-02	
B13D82	ENE461AL	NP-237	-5.62E-04	+-	1.1E-03	(2s)	U	pCi/g	55.39%	2.83E-02	
B13D82	ENE462AC	STRONTIUM	2.95E+01	+-	7.8E+00	(2s)		pCi/g	75.10%	1.78E-01	
B13D82 DUP	ENE461AN	PU-238	-3.42E-04	+-	6.9E-04	(2s)	U	pCi/g	78.53%	1.72E-02	
		PU239/40	4.26E-03	+-	8.5E-03	(2s)	U	pCi/g	78.53%	1.15E-02	
B13D82 DUP	ENE461AP	AM-241	4.76E-03	+-	9.5E-03	(2s)	U	pCi/g	80.86%	1.29E-02	
B13D82 DUP	ENE461AQ	U-234	6.39E-01	+-	1.8E-01	(2s)		pCi/g	80.43%	2.04E-02	
		U-235	6.01E-02	+-	4.4E-02	(2s)		pCi/g	80.43%	2.04E-02	
		U-238	6.31E-01	+-	1.8E-01	(2s)		pCi/g	80.43%	2.04E-02	
B13D82 DUP	ENE461AR	TOTAL-URANIUM	2.29E+00	+-	5.4E-01	(2s)		ug/g		7.29E-05	
B13D82 DUP	ENE461AT	TH-228	8.75E-01	+-	2.5E-01	(2s)		pCi/g	83.04%	2.10E-02	
		TH-230	7.72E-01	+-	2.2E-01	(2s)		pCi/g	83.04%	1.94E-02	
		TH-232	9.39E-01	+-	2.6E-01	(2s)		pCi/g	83.04%	2.87E-02	
B13D82 DUP	ENE461AU	BETA	1.34E+02	+-	1.8E+01	(2s)		pCi/g	100.00%	3.36E+00	
B13D82 DUP	ENE461AV	STRONTIUM	3.09E+01	+-	8.3E+00	(2s)		pCi/g	59.40%	2.23E-01	

Number of Results: 64

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL
Ordered by QC Type, Batch No.

Date: 28-Jan-02

Report No. : 18709

SDG No.: W03636

QC Type	Work Order Number	Parameter	Result +- Uncertainty	Qual	Units	Yield	Recovery	Bias	MDC|MDA
MATRIX SPI	ENDN71AN	TOTAL-URANIUM	4.49E+01 +- 1.1E+01 (2s)		ug/g		111.54%	0.1	7.29E-05
BLANK QC	EPGJN1AA	PU-238	4.02E-03 +- 1.1E-02 (2s)	U	pCi/g	61.83%			2.64E-02
		PU239/40	0.00E+00 +- 1.3E-02 (2s)	U	pCi/g	61.83%			1.43E-02
BLANK QC	EPGJP1AA	AM-241	7.64E-03 +- 1.1E-02 (2s)	U	pCi/g	83.42%			1.60E-02
BLANK QC	EPGJP1AD	AM-241	1.66E-02 +- 2.6E-02 (2s)	U	pCi/g	46.62%			4.12E-02
BLANK QC	EPGJV1AA	U-234	6.98E-03 +- 1.4E-02 (2s)	U	pCi/g	88.74%			1.89E-02
		U-235	6.98E-03 +- 1.4E-02 (2s)	U	pCi/g	88.74%			1.89E-02
		U-238	-1.12E-03 +- 1.6E-03 (2s)	U	pCi/g	88.74%			3.19E-02
BLANK QC	EPGJ01AA	TOTAL-URANIUM	5.25E-03 +- 1.5E-03 (2s)		ug/g				7.29E-05
BLANK QC	EPGJ31AA	TH-228	3.54E-03 +- 1.1E-02 (2s)	U	pCi/g	80.33%			2.78E-02
		TH-230	4.44E-03 +- 9.7E-03 (2s)	U	pCi/g	80.33%			1.94E-02
		TH-232	0.00E+00 +- 1.2E-02 (2s)	U	pCi/g	80.33%			1.31E-02
BLANK QC	EPGJ81AA	BETA	8.64E-01 +- 1.3E+00 (2s)	U	pCi/g	100.00%			2.67E+00
BLANK QC	EPGKK1AA	ALPHA	-4.22E-01 +- 7.8E-01 (2s)	U	pCi/g	100.00%			2.55E+00
BLANK QC	EPGKT1AA	AM-241	1.21E-02 +- 2.1E-02 (2s)	U	pCi/g				3.67E-02
		CO-60	6.75E-04 +- 7.0E-03 (2s)	U	pCi/g				1.26E-02
		CS-137	-5.91E-04 +- 7.4E-03 (2s)	U	pCi/g				1.29E-02
		EU-152	1.12E-02 +- 1.9E-02 (2s)	U	pCi/g				3.27E-02
		EU-154	1.24E-02 +- 1.8E-02 (2s)	U	pCi/g				3.55E-02
		EU-155	1.15E-02 +- 1.6E-02 (2s)	U	pCi/g				2.77E-02
		RA-228	1.41E-02 +- 4.2E-02 (2s)	U	pCi/g				6.11E-02
BLANK QC	EPGK51AA	STRONTIUM	-1.86E-02 +- 4.1E-02 (2s)	U	pCi/g	88.50%			1.02E-01
BLANK QC	EPGLC1AA	NP-237	0.00E+00 +- 1.4E-02 (2s)	U	pCi/g	66.86%			1.55E-02
BLANK QC	EQ9N01AA	STRONTIUM	4.00E-03 +- 6.6E-02 (2s)	U	pCi/g	87.00%			1.57E-01
LCS	EPGJN1AC	PU239/40	3.51E+00 +- 7.4E-01 (2s)		pCi/g	37.13%	103.71%	0.0	2.43E-02
LCS	EPGJP1AC	AM-241	3.50E+00 +- 6.6E-01 (2s)		pCi/g	88.96%	77.43%	-0.2	1.86E-02
LCS	EPGJP1AE	AM-241	4.01E+00 +- 7.2E-01 (2s)		pCi/g	98.55%	89.36%	-0.1	2.04E-02
LCS	EPGJV1AC	U-234	3.12E+00 +- 6.6E-01 (2s)		pCi/g	93.09%	94.49%	-0.1	1.78E-02
		U-235	1.05E-01 +- 5.6E-02 (2s)		pCi/g	93.09%	69.76%	-0.3	1.78E-02

Bias - *(Result/Expected)-1 as defined by ANSI N13.30.*

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 28-Jan-02

Report No. : 18709

SDG No.: W03636

QC Type	Work Order Number	Parameter	Result +- Uncertainty	Qual	Units	Yield	Recovery	Bias	MDC|MDA
LCS	EPGJV1AC	U-238	3.37E+00 +- 7.0E-01 (2s)		pCi/g	93.09%	97.63%	0.0	1.78E-02
LCS	EPGJ01AC	TOTAL-URANIUM	4.24E+01 +- 1.0E+01 (2s)		ug/g		105.10%	0.1	7.29E-05
LCS	EPGJ31AC	TH-230	1.02E+00 +- 3.0E-01 (2s)		pCi/g	68.03%	88.34%	-0.1	3.52E-02
LCS	EPGJ81AC	BETA	7.28E+01 +- 1.0E+01 (2s)		pCi/g	100.00%	107.39%	0.1	2.68E+00
LCS	EPGKK1AC	ALPHA	8.11E+01 +- 1.9E+01 (2s)		pCi/g	100.00%	88.36%	-0.1	2.05E+00
LCS	EPGKT1AC	CS-137	3.36E-01 +- 5.6E-02 (2s)		pCi/g		113.97%	0.1	3.75E-02
		K-40	2.03E+01 +- 2.5E+00 (2s)		pCi/g		103.69%	0.0	2.63E-01
		RA-226	1.13E+00 +- 1.5E-01 (2s)		pCi/g		97.91%	0.0	5.93E-02
		RA-228	2.46E+00 +- 3.4E-01 (2s)		pCi/g		131.18%	0.3	1.11E-01
		U-238DHP	1.64E+00 +- 7.4E-01 (2s)		pCi/g		156.15%	0.6	7.05E-01
LCS	EPGK51AC	STRONTIUM	1.34E+00 +- 3.8E-01 (2s)		pCi/g	79.00%	117.76%	0.2	1.22E-01
LCS	EPGLC1AC	NP-237	1.04E+00 +- 2.2E-01 (2s)		pCi/g	61.05%	113.99%	0.1	2.77E-02
LCS	EQ9N01AC	STRONTIUM	1.08E+00 +- 3.2E-01 (2s)		pCi/g	90.90%	95.00%	-0.1	1.66E-01

Number of Results: 42

FORM I

SAMPLE RESULTS

Date: 28-Jan-02

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/1/01 9:10:00 AM
Lot-Sample No.:	J1K050171-1	**Report No. :**	18709	**Received Date:**	11/5/01 1:30:00 PM
Client Sample ID:	B13CR8	**COC No. :**	B02-006-07	**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: 1330311	**Work Order:** ENDN71AD			**Report DB ID:** 9ENDN710								
PU-238	-7.94E-04	U	1.1E-03	1.1E-03	2.27E-02	pCi/g	68.00%	*-0.04*	1/23/02 03:40 a		2.02	PUISO_PLATE_AEA
						4.62E-03	1.00E+00	*-(1.4)*			G	ALP123
PU239/40	9.11E-03	U	1.4E-02	1.4E-02	2.26E-02	pCi/g	68.00%	*0.4*	1/23/02 03:40 a		2.02	PUISO_PLATE_AEA
						4.61E-03	1.00E+00	*(1.3)*			G	ALP123
Batch: 1330313	**Work Order:** ENDN71AE			**Report DB ID:** 9ENDN710								
AM-241	-1.43E-03	U	1.4E-03	1.5E-03	2.39E-02	pCi/g	84.67%	*-0.06*	1/26/02 01:39 p		2.02	AMCMISO_EIE_PLT_
						5.89E-03	1.00E+00	*-(2.)*			G	ALP37
Batch: 1330315	**Work Order:** ENDN71AA			**Report DB ID:** 9ENDN710								
U-234	9.64E-01		1.8E-01	2.6E-01	2.38E-02	pCi/g	67.62%	*(40.6)*	1/7/02 05:17 p		1.03	UISO_IE_PLATE_AE
							1.00E+00	*(7.3)*			G	ALP1
U-235	6.14E-02		4.6E-02	4.8E-02	2.38E-02	pCi/g	67.62%	*(2.6)*	1/7/02 05:17 p		1.03	UISO_IE_PLATE_AE
							1.00E+00	*(2.6)*			G	ALP1
U-238	9.38E-01		1.8E-01	2.6E-01	2.38E-02	pCi/g	67.62%	*(39.5)*	1/7/02 05:17 p		1.03	UISO_IE_PLATE_AE
							1.00E+00	*(7.3)*			G	ALP1
								Ratio U-234/238 = 1.0				
Batch: 1330316	**Work Order:** ENDN71AM			**Report DB ID:** 9ENDN710								
TOTAL-URANIUM	2.45E+00		0.0E+00	5.8E-01	7.29E-05	ug/g		*(33629.3)*	1/9/02 09:13 a	0.2503	0.2503	UTOT_KPA
						2.58E-05	1.00E+00	*(8.4)*		ML	ML	LIP3
Batch: 1330317	**Work Order:** ENDN71AG			**Report DB ID:** 9ENDN710								
TH-228	1.14E+00		1.4E-01	3.1E-01	1.74E-02	pCi/g	100.99%	*(65.6)*	1/11/02 07:01 a		2.02	THISO_IE_PRECIP_
						2.84E-03	1.00E+00	*(7.4)*			G	ALP113

00111

STL Richland

rptSTLRchSample 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 I

SAMPLE RESULTS

Date: 28-Jan-02

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/1/01 9:10:00 AM
Lot-Sample No.:	J1K050171-1	**Report No. :**	18709	**Received Date:**	11/5/01 1:30:00 PM
Client Sample ID:	B13CR8	**COC No. :**	B02-006-07	**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
TH-230	8.83E-01		1.2E-01	2.4E-01	1.61E-02	pCi/g	100.99%	*(54.9)*	1/11/02 07:01 a		2.02	THISO_IE_PRECIP_
						2.63E-03	1.00E+00	*(7.2)*			G	ALP113
TH-232	1.22E+00		1.4E-01	3.3E-01	2.37E-02	pCi/g	100.99%	*(51.3)*	1/11/02 07:01 a		2.02	THISO_IE_PRECIP_
						6.44E-03	1.00E+00	*(7.5)*			G	ALP113
Batch: 1330319	**Work Order:** ENDN71AJ			**Report DB ID:** 9ENDN710								
BETA	2.34E+01		2.9E+00	4.2E+00	3.55E+00	pCi/g	100.00%	*(6.6)*	12/17/01 07:26 p		0.2	9310_ALPHABETA_G
						1.69E+00	1.50E+01	*(11.)*			G	GPC26A
Batch: 1330321	**Work Order:** ENDN71AH			**Report DB ID:** 9ENDN710								
ALPHA	1.32E+01		5.4E+00	6.1E+00	5.82E+00	pCi/g	100.00%	*(2.3)*	12/17/01 07:47 p		0.05	9310_ALPHABETA_G
						2.27E+00	1.00E+01	*(4.3)*			G	GPC10A
Batch: 1330323	**Work Order:** ENDN71AK			**Report DB ID:** 9ENDN710								
AM-241	2.82E-02	U	2.5E-02	2.5E-02	3.63E-02	pCi/g		*0.78*	12/18/01 08:06 p		310.9	GAMMA_GS
								(2.3)			g	GER8$1
CO-60	-4.62E-03	U	1.1E-02	1.1E-02	1.94E-02	pCi/g		*-0.24*	12/18/01 08:06 p		310.9	GAMMA_GS
							5.00E-02	*-0.81*			g	GER8$1
CS-137	-1.25E-02	U	1.1E-02	1.1E-02	1.79E-02	pCi/g		*-0.7*	12/18/01 08:06 p		310.9	GAMMA_GS
							1.00E-01	*-(2.2)*			g	GER8$1
EU-152	-1.44E-02	U	3.0E-02	3.0E-02	4.82E-02	pCi/g		*-0.3*	12/18/01 08:06 p		310.9	GAMMA_GS
							1.00E-01	*-0.97*			g	GER8$1
EU-154	-3.67E-02	U	3.6E-02	3.6E-02	5.76E-02	pCi/g		*-0.64*	12/18/01 08:06 p		310.9	GAMMA_GS
							1.00E-01	*-(2.)*			g	GER8$1

0012

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 I

SAMPLE RESULTS

Date: 28-Jan-02

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/1/01 9:10:00 AM
Lot-Sample No.:	J1K050171-1	**Report No. :**	18709	**Received Date:**	11/5/01 1:30:00 PM
Client Sample ID:	B13CR8	**COC No. :**	B02-006-07	**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
EU-155	1.61E-02	U	3.0E-02	3.0E-02	4.94E-02	pCi/g	1.00E-01	*0.33* *(1.1)*	12/18/01 08:06 p		310.9 g	GAMMA_GS GER8$1
RA-228	6.53E-01		1.1E-01	1.1E-01	7.05E-02	pCi/g		*(9.3)* *(11.5)*	12/18/01 08:06 p		310.9 g	GAMMA_GS GER8$1
Batch: 1330325	**Work Order:** ENDN71AC			**Report DB ID:** 9ENDN710								
STRONTIUM	7.79E-01		1.3E-01	2.4E-01	1.54E-01	pCi/g 7.18E-02	57.70% 1.00E+00	*(5.)* *(6.4)*	12/28/01 01:41 p		6.01 G	SRTOT_SEP_PRECIP GPC32A
Batch: 1330326	**Work Order:** ENDN71AL			**Report DB ID:** 9ENDN710								
NP-237	1.28E-02	U	1.9E-02	1.9E-02	2.68E-02	pCi/g 4.38E-03	57.67% 1.00E+00	*0.48* *(1.3)*	12/20/01 09:37 a		2.02 G	NP237_LLE_PLATE_ ALP17

Number of Results: 21

Comments:

0013

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 I

SAMPLE RESULTS

Date: 28-Jan-02

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/2/01 7:45:00 AM
Lot-Sample No.:	J1K060213-1	**Report No. :**	18709	**Received Date:**	11/6/01 10:50:00 AM
Client Sample ID:	B13D82	**COC No. :**	B02-006	**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: 1330311	**Work Order:** ENE461AD			**Report DB ID:** 9ENE4610								
PU-238	5.60E-03	U	1.1E-02	1.1E-02	1.52E-02	pCi/g	60.15%	*0.37*	1/23/02 03:41 a		2.01	PUISO_PLATE_AEA
							1.00E+00	*1.*			G	ALP124
PU239/40	0.00E+00	U	0.0E+00	1.4E-02	1.51E-02	pCi/g	60.15%	*0.*	1/23/02 03:41 a		2.01	PUISO_PLATE_AEA
							1.00E+00	*0.*			G	ALP124
Batch: 1330313	**Work Order:** ENE461AE			**Report DB ID:** 9ENE4610								
AM-241	6.91E-03	U	1.0E-02	1.0E-02	1.45E-02	pCi/g	87.45%	*0.48*	1/26/02 01:40 p		2.01	AMCMISO_EIE_PLT_
						2.37E-03	1.00E+00	*(1.3)*			G	ALP38
Batch: 1330315	**Work Order:** ENE461AA			**Report DB ID:** 9ENE4610								
U-234	7.48E-01		1.6E-01	2.1E-01	2.25E-02	pCi/g	72.36%	*(33.2)*	1/7/02 05:17 p		1.03	UISO_IE_PLATE_AE
							1.00E+00	*(7.)*			G	ALP3
U-235	3.32E-02	U	3.3E-02	3.4E-02	2.25E-02	pCi/g	72.36%	*(1.5)*	1/7/02 05:17 p		1.03	UISO_IE_PLATE_AE
							1.00E+00	*(2.)*			G	ALP3
U-238	9.30E-01		1.8E-01	2.5E-01	3.35E-02	pCi/g	72.36%	*(27.8)*	1/7/02 05:17 p		1.03	UISO_IE_PLATE_AE
						5.47E-03	1.00E+00	*(7.4)*			G	ALP3
								Ratio U-234/238 = 0.8				
Batch: 1330316	**Work Order:** ENE461AM			**Report DB ID:** 9ENE4610								
TOTAL-URANIUM	1.86E+00		0.0E+00	4.4E-01	7.29E-05	ug/g		*(25547.2)*	1/9/02 09:25 a	0.2509	0.2509	UTOT_KPA
						2.58E-05	1.00E+00	*(8.4)*		ML	ML	LIP3
Batch: 1330317	**Work Order:** ENE461AG			**Report DB ID:** 9ENE4610								
TH-228	8.19E-01		1.2E-01	2.3E-01	2.37E-02	pCi/g	92.92%	*(34.6)*	1/11/02 07:01 a		2.03	THISO_IE_PRECIP_
						5.84E-03	1.00E+00	*(7.1)*			G	ALP114

0014

STL Richland

rptSTLRchSample 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 I

SAMPLE RESULTS

Date: 28-Jan-02

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/2/01 7:45:00 AM
Lot-Sample No.:	J1K060213-1	**Report No. :**	18709	**Received Date:**	11/6/01 10:50:00 AM
Client Sample ID:	B13D82	**COC No. :**	B02-006	**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
TH-230	8.51E-01		1.2E-01	2.4E-01	1.66E-02	pCi/g	92.92%	*(51.4)*	1/11/02 07:01 a		2.03	THISO_IE_PRECIP_
						2.71E-03	1.00E+00	*(7.2)*			G	ALP114
TH-232	8.80E-01		1.2E-01	2.4E-01	1.11E-02	pCi/g	92.92%	*(79.)*	1/11/02 07:01 a		2.03	THISO_IE_PRECIP_
							1.00E+00	*(7.2)*			G	ALP114
Batch: 1330319	**Work Order:** ENE461AJ			**Report DB ID:** 9ENE4610								
BETA	1.26E+02		5.8E+00	1.7E+01	3.45E+00	pCi/g	100.00%	*(36.5)*	12/17/01 07:26 p		0.2007	9310_ALPHABETA_G
						1.64E+00	1.50E+01	*(14.5)*			G	GPC26B
Batch: 1330321	**Work Order:** ENE461AH			**Report DB ID:** 9ENE4610								
ALPHA	6.12E+00		4.0E+00	4.2E+00	5.69E+00	pCi/g	100.00%	*(1.1)*	12/17/01 07:47 p		0.0505	9310_ALPHABETA_G
						2.18E+00	1.00E+01	*(2.9)*			G	GPC10D
Batch: 1330323	**Work Order:** ENE461AK			**Report DB ID:** 9ENE4610								
AM-241	2.59E-02	U	7.5E-02	7.5E-02	1.25E-01	pCi/g		*0.21*	12/19/01 07:27 p		331.2	GAMMA_GS
								0.69			g	GER4$1
CO-60	2.01E-03	U	1.3E-02	1.3E-02	2.23E-02	pCi/g		*0.09*	12/19/01 07:27 p		331.2	GAMMA_GS
							5.00E-02	*0.31*			g	GER4$1
CS-137	7.56E-03	U	1.3E-02	1.3E-02	2.21E-02	pCi/g		*0.34*	12/19/01 07:27 p		331.2	GAMMA_GS
							1.00E-01	*(1.2)*			g	GER4$1
EU-152	-2.54E-02	U	3.1E-02	3.1E-02	5.17E-02	pCi/g		*-0.49*	12/19/01 07:27 p		331.2	GAMMA_GS
							1.00E-01	*-(1.6)*			g	GER4$1
EU-154	-1.44E-02	U	4.2E-02	4.2E-02	7.12E-02	pCi/g		*-0.2*	12/19/01 07:27 p		331.2	GAMMA_GS
							1.00E-01	*-0.68*			g	GER4$1

0015

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 I

SAMPLE RESULTS

Date: 28-Jan-02

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/2/01 7:45:00 AM
Lot-Sample No.:	J1K060213-1	**Report No. :**	18709	**Received Date:**	11/6/01 10:50:00 AM
Client Sample ID:	B13D82	**COC No. :**	B02-006	**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
EU-155	2.84E-04	U	4.2E-02	4.2E-02	6.92E-02	pCi/g		*0.*	12/19/01 07:27 p		331.2	GAMMA_GS
							1.00E-01	*0.01*			g	GER4$1
RA-228	7.28E-01		1.3E-01	1.3E-01	7.60E-02	pCi/g		*(9.6)*	12/19/01 07:27 p		331.2	GAMMA_GS
								(11.3)			g	GER4$1
Batch: 1330326	**Work Order:** ENE461AL			**Report DB ID:** 9ENE4610								
NP-237	-5.62E-04	U	1.1E-03	1.1E-03	2.83E-02	pCi/g	55.39%	*-0.02*	12/20/01 09:39 a		2.03	NP237_LLE_PLATE_
						4.62E-03	1.00E+00	*-1.*			G	ALP20
Batch: 2004332	**Work Order:** ENE462AC			**Report DB ID:** 9ENE4620								
STRONTIUM	2.95E+01		7.4E-01	7.8E+00	1.78E-01	pCi/g	75.10%	*(165.8)*	1/8/02 06:01 p		6.02	SRTOT_SEP_PRECIP
						8.28E-02	1.00E+00	*(7.6)*			G	GPC32B

Number of Results: 21

Comments:

0016

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: 28-Jan-02

DUPLICATE RESULTS

Lab Name:	STL Richland	SDG:	W03636	Collection Date:	11/1/01 9:10:00 AM
Lot-Sample No.:	J1K050171-1	Report No. :	18709	Received Date:	11/5/01 1:30:00 PM
Client Sample ID:	B13CR8 DUP	COC No. :	B02-006-07	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: 1330321	Work Order:	ENDN71AP		Report DB ID:	ENDN71PR	Orig Sa DB ID:	9ENDN710					
ALPHA	1.07E+01		5.0E+00	5.5E+00	5.67E+00	pCi/g	100.00%	(1.9)	12/17/01 07:47 p		0.0502	9310_ALPHABETA_G
	1.32E+01	RER	0.6			1.00E+01		(3.9)			G	GPC10C
Batch: 1330323	Work Order:	ENDN71AQ		Report DB ID:	ENDN71QR	Orig Sa DB ID:	9ENDN710					
AM-241	5.03E-02	U	3.0E-02	3.0E-02	4.37E-02	pCi/g		(1.2)	12/19/01 07:25 p		305.0	GAMMA_GS
	2.82E-02	RER	1.1					(3.4)			g	GER5$1
CO-60	-1.69E-03	U	1.4E-02	1.4E-02	2.34E-02	pCi/g		-0.07	12/19/01 07:25 p		305.0	GAMMA_GS
	-4.62E-03	RER	0.3			5.00E-02		-0.25			g	GER5$1
CS-137	-7.40E-03	U	1.3E-02	1.3E-02	2.20E-02	pCi/g		-0.34	12/19/01 07:25 p		305.0	GAMMA_GS
	-1.25E-02	RER	0.6			1.00E-01		-(1.1)			g	GER5$1
EU-152	4.02E-03	U	5.6E-02	5.6E-02	6.01E-02	pCi/g		0.07	12/19/01 07:25 p		305.0	GAMMA_GS
	-1.44E-02	RER	0.6			1.00E-01		0.14			g	GER5$1
EU-154	-2.33E-02	U	4.1E-02	4.1E-02	6.91E-02	pCi/g		-0.34	12/19/01 07:25 p		305.0	GAMMA_GS
	-3.67E-02	RER	0.5			1.00E-01		-(1.1)			g	GER5$1
EU-155	2.19E-02	U	3.6E-02	3.6E-02	6.12E-02	pCi/g		0.36	12/19/01 07:25 p		305.0	GAMMA_GS
	1.61E-02	RER	0.3			1.00E-01		(1.2)			g	GER5$1
RA-228	4.96E-01		1.3E-01	1.3E-01	8.41E-02	pCi/g		(5.9)	12/19/01 07:25 p		305.0	GAMMA_GS
	6.53E-01	RER	1.9					(7.9)			g	GER5$1
Batch: 1330325	Work Order:	ENDN71AR		Report DB ID:	ENDN71RR	Orig Sa DB ID:	9ENDN710					
STRONTIUM	6.54E-01		1.4E-01	2.2E-01	1.84E-01	pCi/g	45.80%	(3.5)	12/28/01 01:41 p		6.01	SRTOT_SEP_PRECIP
	7.79E-01	RER	0.8			1.00E+00		(5.9)			G	GPC32B
Batch: 1330326	Work Order:	ENDN71AT		Report DB ID:	ENDN71TR	Orig Sa DB ID:	9ENDN710					
NP-237	-4.30E-04	U	8.6E-04	8.6E-04	2.16E-02	pCi/g	71.80%	-0.02	12/20/01 09:38 a		2.01	NP237_LLE_PLATE_
	1.28E-02	RER	1.4			1.00E+00		-1.			G	ALP19

STL Richland

rptSTLRchDupV3.81 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: 28-Jan-02

DUPLICATE RESULTS

Lab Name:	STL Richland	SDG:	W03636	Collection Date:	11/1/01 9:10:00 AM
Lot-Sample No.:	J1K050171-1	Report No. :	18709	Received Date:	11/5/01 1:30:00 PM
Client Sample ID:	B13CR8 DUP	COC No. :	B02-006-07	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

Number of Results: 10

Comments:

0018

STL Richland

rptSTLRchDupV3.81 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.

FORM II

Date: 28-Jan-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/2/01 7:45:00 AM
Lot-Sample No.:	J1K060213-1	**Report No. :**	18709	**Received Date:**	11/6/01 10:50:00 AM
Client Sample ID:	B13D82 DUP	**COC No. :**	B02-006	**Matrix:**	WATER

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: 1330311	**Work Order:** ENE461AN			**Report DB ID:** ENE461NR		**Orig Sa DB ID:** 9ENE4610						
PU-238	-3.42E-04	U	6.8E-04	6.9E-04	1.72E-02	pCi/g	78.53%	-0.02	1/23/02 03:41 a		2.01	PUISO_PLATE_AEA
	5.60E-03	RER	1.1			1.00E+00		-1.			G	ALP127
PU239/40	4.26E-03	U	8.5E-03	8.5E-03	1.15E-02	pCi/g	78.53%	0.37	1/23/02 03:41 a		2.01	PUISO_PLATE_AEA
	0.00E+00	RER	0.5			1.00E+00		1.			G	ALP127
										Alpha Spec Result Sum = 3.9E-03		
Batch: 1330313	**Work Order:** ENE461AP			**Report DB ID:** ENE461PR		**Orig Sa DB ID:** 9ENE4610						
AM-241	4.76E-03	U	9.5E-03	9.5E-03	1.29E-02	pCi/g	80.86%	0.37	1/26/02 01:40 p		2.01	AMCMISO_EIE_PLT_
	6.91E-03	RER	0.3			1.00E+00		1.			G	ALP39
										Alpha Spec Result Sum = 8.7E-03		
Batch: 1330315	**Work Order:** ENE461AQ			**Report DB ID:** ENE461QR		**Orig Sa DB ID:** 9ENE4610						
U-234	6.39E-01		1.4E-01	1.8E-01	2.04E-02	pCi/g	80.43%	(31.4)	1/7/02 10:03 p		1.01	UISO_IE_PLATE_AE
	7.48E-01	RER	0.8			1.00E+00		(6.9)			G	ALP1
U-235	6.01E-02		4.3E-02	4.4E-02	2.04E-02	pCi/g	80.43%	(3.)	1/7/02 10:03 p		1.01	UISO_IE_PLATE_AE
	3.32E-02	RER	1.0			1.00E+00		(2.7)			G	ALP1
U-238	6.31E-01		1.4E-01	1.8E-01	2.04E-02	pCi/g	80.43%	(31.)	1/7/02 10:03 p		1.01	UISO_IE_PLATE_AE
	9.30E-01	RER	1.9			1.00E+00		(6.9)			G	ALP1
								Ratio U-234/238 = 1.0		*Alpha Spec Result Sum = 1.3E+00*		
Batch: 1330316	**Work Order:** ENE461AR			**Report DB ID:** ENE461RR		**Orig Sa DB ID:** 9ENE4610						
TOTAL-URANIUM	2.29E+00		0.0E+00	5.4E-01	7.29E-05	ug/g		(31464.7)	1/9/02 09:41 a	0.2508	0.2508	UTOT_KPA
	1.86E+00	RER	1.2			1.00E+00		(8.4)		ML	ML	LIP3
										Alpha Spec Result Sum = 1.3E+00		
Batch: 1330317	**Work Order:** ENE461AT			**Report DB ID:** ENE461TR		**Orig Sa DB ID:** 9ENE4610						
TH-228	8.75E-01		1.4E-01	2.5E-01	2.10E-02	pCi/g	83.04%	(41.7)	1/12/02 08:17 a		2.03	THISO_IE_PRECIP_
	8.19E-01	RER	0.3			1.00E+00		(7.)			G	ALP113

0019

STL Richland

rptSTLRchDupV3.81 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: 28-Jan-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W03636	**Collection Date:**	11/2/01 7:45:00 AM
Lot-Sample No.:	J1K060213-1	**Report No. :**	18709	**Received Date:**	11/6/01 10:50:00 AM
Client Sample ID:	B13D82 DUP	**COC No. :**	B02-006	**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
TH-230	7.72E-01		1.2E-01	2.2E-01	1.94E-02	pCi/g	83.04%	(39.7)	1/12/02 08:17 a		2.03	THISO_IE_PRECIP_
	8.51E-01	RER	0.5			1.00E+00		(6.9)			G	ALP113
TH-232	9.39E-01		1.3E-01	2.6E-01	2.87E-02	pCi/g	83.04%	(32.8)	1/12/02 08:17 a		2.03	THISO_IE_PRECIP_
	8.80E-01	RER	0.3			1.00E+00		(7.1)			G	ALP113
												Alpha Spec Result Sum = 1.7E+00
Batch: 1330319	**Work Order:** ENE461AU			**Report DB ID:** ENE461UR		**Orig Sa DB ID:** 9ENE4610						
BETA	1.34E+02		6.2E+00	1.8E+01	3.36E+00	pCi/g	100.00%	(39.9)	12/17/01 07:26 p		0.2003	9310_ALPHABETA_G
	1.26E+02	RER	0.7			1.50E+01		(14.6)			G	GPC26C
												Alpha Spec Result Sum = 1.7E+00
Batch: 2004332	**Work Order:** ENE461AV			**Report DB ID:** ENE461VR		**Orig Sa DB ID:** 9ENE4610						
STRONTIUM	3.09E+01		8.3E-01	8.3E+00	2.23E-01	pCi/g	59.40%	(138.7)	1/8/02 06:01 p		6.03	SRTOT_SEP_PRECIP
		RER				1.00E+00		(7.5)			G	GPC32A
												Alpha Spec Result Sum = 1.7E+00

Number of Results: 12

Comments:

0020

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.

FORM II

BLANK RESULTS

Date: 28-Jan-02

Lab Name: STL Richland

SDG: W03636

Lot-Sample No.: J1K260000-311

Report No. : 18709

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330311	Work Order:	EPGJN1AA		Report DB ID:	EPGJN1AB							
PU-238	4.02E-03	U	1.1E-02	1.1E-02	2.64E-02	pCi/g	61.83%	0.15	1/23/02 03:42 a		2.0	PUISO_PLATE_AEA
					6.03E-03	1.00E+00		0.75			G	ALP128
PU239/40	0.00E+00	U	0.0E+00	1.3E-02	1.43E-02	pCi/g	61.83%	0.	1/23/02 03:42 a		2.0	PUISO_PLATE_AEA
						1.00E+00		0.			G	ALP128

Number of Results: 2

Comments:

0021

STL Richland

rptSTLRchBlank 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: 28-Jan-02

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-313 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330313	**Work Order:** EPGJP1AA			**Report DB ID:** EPGJP1AB								
AM-241	7.64E-03	U	1.1E-02	1.1E-02	1.60E-02	pCi/g	83.42%	0.48	1/26/02 01:41 p		2.0	AMCMISO_EIE_PLT_
					2.62E-03	1.00E+00		(1.3)			G	ALP41
Batch: 1330313	**Work Order:** EPGJP1AD			**Report DB ID:** EPGJP1DX								
AM-241	1.66E-02	U	2.6E-02	2.6E-02	4.12E-02	pCi/g	46.62%	0.4	1/27/02 08:40 a		2.01	AMCMISO_EIE_PLT_
					8.38E-03	1.00E+00		(1.3)			G	ALP124

Number of Results: 2

Comments:

0022

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: 28-Jan-02

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-315 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330315	Work Order: EPGJV1AA			Report DB ID: EPGJV1AB								
U-234	6.98E-03	U	1.4E-02	1.4E-02	1.89E-02	pCi/g	88.74%	0.37	1/7/02 10:03 p		1.0	UISO_IE_PLATE_AE
						1.00E+00		1.			G	ALP3
U-235	6.98E-03	U	1.4E-02	1.4E-02	1.89E-02	pCi/g	88.74%	0.37	1/7/02 10:03 p		1.0	UISO_IE_PLATE_AE
						1.00E+00		1.			G	ALP3
U-238	-1.12E-03	U	1.6E-03	1.6E-03	3.19E-02	pCi/g	88.74%	-0.04	1/7/02 10:03 p		1.0	UISO_IE_PLATE_AE
					6.50E-03	1.00E+00		-(1.4)			G	ALP3

Ratio U-234/238 = -6.2

Number of Results: 3

Comments:

0023

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: 28-Jan-02

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-316 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330316	Work Order: EPGJ01AA			Report DB ID: EPGJ01AB								
TOTAL-URANIUM	5.25E-03		0.0E+00	1.5E-03	7.29E-05	ug/g		(72.)	1/9/02 08:39 a	0.25	0.25	UTOT_KPA
					2.58E-05	1.00E+00		(6.8)		ML	ML	LIP3

Number of Results: 1

Comments:

0024

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

FORM II

BLANK RESULTS

Date: 28-Jan-02

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-317 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330317	Work Order: EPGJ31AA			Report DB ID: EPGJ31AB								
TH-228	3.54E-03	U	1.1E-02	1.1E-02	2.78E-02	pCi/g	80.33%	0.13	1/12/02 08:17 a		2.0	THISO_IE_PRECIP_
					6.86E-03	1.00E+00		0.67			G	ALP114
TH-230	4.44E-03	U	9.7E-03	9.7E-03	1.94E-02	pCi/g	80.33%	0.23	1/12/02 08:17 a		2.0	THISO_IE_PRECIP_
					3.18E-03	1.00E+00		0.91			G	ALP114
TH-232	0.00E+00	U	0.0E+00	1.2E-02	1.31E-02	pCi/g	80.33%	0.	1/12/02 08:17 a		2.0	THISO_IE_PRECIP_
						1.00E+00		0.			G	ALP114

Number of Results: 3

Comments:

0025

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: 28-Jan-02

Lab Name: STL Richland

SDG: W03636

Lot-Sample No.: J1K260000-319

Report No. : 18709

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330319	Work Order:	EPGJ81AA		Report DB ID:	EPGJ81AB							
BETA	8.64E-01	U	1.3E+00	1.3E+00	2.67E+00	pCi/g	100.00%	0.32	12/17/01 07:26 p		0.2	9310_ALPHABETA_G
					1.26E+00	1.50E+01		(1.4)			G	GPC26D

Number of Results: 1

Comments:

0026

STL Richland

rptSTLRchBlank V3.61 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

BLANK RESULTS

Date: 28-Jan-02

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-321 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330321	Work Order:	EPGKK1AA		Report DB ID:	EPGKK1AB							
ALPHA	-4.22E-01	U	7.7E-01	7.8E-01	2.55E+00	pCi/g	100.00%	-0.17	12/17/01 07:47 p		0.05	9310_ALPHABETA_G
					1.02E+00	1.00E+01		-(1.1)			G	GPC10E

Number of Results: 1

Comments:

0021

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: 28-Jan-02

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-323 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330323	Work Order: EPGKT1AA			Report DB ID: EPGKT1AX								
AM-241	1.21E-02	U	2.1E-02	2.1E-02	3.67E-02	pCi/g		0.33	12/19/01 07:28 p		348.0	GAMMA_GS
								(1.2)			g	GER7$1
CO-60	6.75E-04	U	7.0E-03	7.0E-03	1.26E-02	pCi/g		0.05	12/19/01 07:28 p		348.0	GAMMA_GS
						5.00E-02		0.19			g	GER7$1
CS-137	-5.91E-04	U	7.4E-03	7.4E-03	1.29E-02	pCi/g		-0.05	12/19/01 07:28 p		348.0	GAMMA_GS
						1.00E-01		-0.16			g	GER7$1
EU-152	1.12E-02	U	1.9E-02	1.9E-02	3.27E-02	pCi/g		0.34	12/19/01 07:28 p		348.0	GAMMA_GS
						1.00E-01		(1.2)			g	GER7$1
EU-154	1.24E-02	U	1.8E-02	1.8E-02	3.55E-02	pCi/g		0.35	12/19/01 07:28 p		348.0	GAMMA_GS
						1.00E-01		(1.3)			g	GER7$1
EU-155	1.15E-02	U	1.6E-02	1.6E-02	2.77E-02	pCi/g		0.41	12/19/01 07:28 p		348.0	GAMMA_GS
						1.00E-01		(1.4)			g	GER7$1
RA-228	1.41E-02	U	4.2E-02	4.2E-02	6.11E-02	pCi/g		0.23	12/19/01 07:28 p		348.0	GAMMA_GS
								0.68			g	GER7$1

Number of Results: 7

Comments:

0028

STL Richland

rptSTLRchBlank 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: 28-Jan-02

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-325 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330325	**Work Order:** EPGK51AA			**Report DB ID:** EPGK51AB								
STRONTIUM	-1.86E-02	U	4.0E-02	4.1E-02	1.02E-01	pCi/g	88.50%	-0.18	12/28/01 01:41 p		6.0	SRTOT_SEP_PRECIP
					4.75E-02	1.00E+00		-0.91			G	GPC32C

Number of Results: 1

Comments:

0029

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: 28-Jan-02

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-326 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1330326	**Work Order:** EPGLC1AA			**Report DB ID:** EPGLC1AB								
NP-237	0.00E+00	U	0.0E+00	1.4E-02	1.55E-02	pCi/g	66.86%	0.	12/20/01 09:40 a		2.0	NP237_LLE_PLATE_
						1.00E+00		0.			G	ALP37

Number of Results: 1

Comments:

0030

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: 28-Jan-02

Lab Name: STL Richland

SDG: W03636

Lot-Sample No.: J2A040000-332

Report No. : 18709

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2004332	Work Order:	EQ9N01AA		Report DB ID:	EQ9N01AB							
STRONTIUM	4.00E-03	U	6.6E-02	6.6E-02	1.57E-01	pCi/g	87.00%	0.03	1/8/02 06:01 p		6.0	SRTOT_SEP_PRECIP
					7.32E-02	1.00E+00		0.12			G	GPC32C

Number of Results: 1

Comments:

0031

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

LCS RESULTS

Date: 28-Jan-02

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-311 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330311	**Work Order:** EPGJN1AC			**Report DB ID:** EPGJN1CS									
PU239/40	3.51E+00		3.5E-01	7.4E-01	2.43E-02	pCi/g	37.13%	3.39E+00	2.5E-02	103.71%	1/23/02 03:43 a	2.0	PUISO_PLATE_AEA
							Rec Limits:	70.	130.	0.0		G	ALP129

Number of Results: 1

Comments:

0032

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-313 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330313	**Work Order:** EPGJP1AC			**Report DB ID:** EPGJP1CS									
AM-241	3.50E+00		2.5E-01	6.6E-01	1.86E-02	pCi/g	88.96%	4.52E+00	3.8E-02	77.43%	1/26/02 01:41 p	2.0	AMCMISO_EIE_PLT_
							Rec Limits:	70.	130.	-0.2		G	ALP47
Batch: 1330313	**Work Order:** EPGJP1AE			**Report DB ID:** EPGJP1EM									
AM-241	4.01E+00		2.5E-01	7.2E-01	2.04E-02	pCi/g	98.55%	4.49E+00	3.8E-02	89.36%	1/26/02 05:35 p	2.03	AMCMISO_EIE_PLT_
							Rec Limits:	70.	130.	-0.1		G	ALP37

Number of Results: 2

Comments:

0033

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-315 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330315	**Work Order:** EPGJV1AC			**Report DB ID:** EPGJV1CS									
U-234	3.12E+00		2.9E-01	6.6E-01	1.78E-02	pCi/g	93.09%	3.30E+00	2.0E-02	94.49%	1/8/02 08:39 a	1.0	UISO_IE_PLATE_AE
							Rec Limits:	70.	130.	-0.1		G	ALP1
U-235	1.05E-01		5.2E-02	5.6E-02	1.78E-02	pCi/g	93.09%	1.50E-01	9.0E-04	69.76%	1/8/02 08:39 a	1.0	UISO_IE_PLATE_AE
							Rec Limits:	70.	130.	-0.3		G	ALP1
U-238	3.37E+00		3.0E-01	7.0E-01	1.78E-02	pCi/g	93.09%	3.45E+00	2.1E-02	97.63%	1/8/02 08:39 a	1.0	UISO_IE_PLATE_AE
							Rec Limits:	70.	130.	0.0		G	ALP1

Number of Results: 3

Comments:

0034

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-316 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330316	Work Order: EPGJ01AC			Report DB ID: EPGJ01CS									
TOTAL-URANIUM	4.24E+01		0.0E+00	1.0E+01	7.29E-05	ug/g		4.03E+01	2.5E-01	105.10%	1/9/02 08:48 a	0.25	UTOT_KPA
							Rec Limits:	70.	130.	0.1		ML	LIP3

Number of Results: 1

Comments:

0035

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-317 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330317	Work Order: EPGJ31AC			Report DB ID: EPGJ31CS									
TH-230	1.02E+00		1.8E-01	3.0E-01	3.52E-02	pCi/g	68.03%	1.15E+00	3.5E-02	88.34%	1/12/02 08:17 a	2.0	THISO_IE_PRECIP_
							Rec Limits:	70.	130.	-0.1		G	ALP115

Number of Results: 1

Comments:

0036

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-319 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330319	Work Order: EPGJ81AC			Report DB ID: EPGJ81CS									
BETA	7.28E+01		4.1E+00	1.0E+01	2.68E+00	pCi/g	100.00%	6.78E+01	8.5E-01	107.39%	12/17/01 07:27 p	0.2	9310_ALPHABETA_G
							Rec Limits:	70.	130.	0.1		G	GPC27A

Number of Results: 1

Comments:

0031

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-321 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330321	Work Order: EPGKK1AC			Report DB ID: EPGKK1CS									
ALPHA	8.11E+01		8.0E+00	1.9E+01	2.05E+00	pCi/g	100.00%	9.17E+01	2.7E+00	88.36%	12/17/01 07:47 p	0.05	9310_ALPHABETA_G
							Rec Limits:	70.	130.	-0.1		G	GPC10F

Number of Results: 1

Comments:

0038

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-323 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330323	**Work Order:** EPGKT1AC			**Report DB ID:** EPGKT1CM									
CS-137	3.36E-01		5.6E-02	5.6E-02	3.75E-02	pCi/g		2.95E-01	1.3E-02	113.97%	12/19/01 07:21 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	0.1		g	GER8$1
K-40	2.03E+01		2.5E+00	2.5E+00	2.63E-01	pCi/g		1.95E+01	1.9E+00	103.69%	12/19/01 07:21 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	0.0		g	GER8$1
RA-226	1.13E+00		1.5E-01	1.5E-01	5.93E-02	pCi/g		1.15E+00	5.2E-02	97.91%	12/19/01 07:21 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	0.0		g	GER8$1
RA-228	2.46E+00		3.4E-01	3.4E-01	1.11E-01	pCi/g		1.87E+00	9.6E-02	131.18%	12/19/01 07:21 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	0.3		g	GER8$1
U-238DHP	1.64E+00		7.4E-01	7.4E-01	7.05E-01	pCi/g		1.05E+00	5.4E-02	156.15%	12/19/01 07:21 p	200.01	GAMMA_GS
							Rec Limits:	.	.	0.6		g	GER8$1

Number of Results: 5

Comments:

0039

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-325 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330325	**Work Order:** EPGK51AC			**Report DB ID:** EPGK51CS									
STRONTIUM	1.34E+00		1.4E-01	3.8E-01	1.22E-01	pCi/g	79.00%	1.13E+00	1.4E-02	117.76%	12/28/01 01:41 p	6.0	SRTOT_SEP_PRECIP
							Rec Limits:	70.	130.	0.2		G	GPC32D

Number of Results: 1

Comments:

0040

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K260000-326 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330326	**Work Order:** EPGLC1AC			**Report DB ID:** EPGLC1CS									
NP-237	1.04E+00		1.5E-01	2.2E-01	2.77E-02	pCi/g	61.05%	9.08E-01	2.7E-02	113.99%	12/20/01 09:41 a	2.0	NP237_LLE_PLATE_
							Rec Limits:	70.	130.	0.1		G	ALP38

Number of Results: 1

Comments:

0041

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J2A040000-332 **Report No. :** 18709 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2004332	Work Order: EQ9N01AC			Report DB ID: EQ9N01CS									
STRONTIUM	1.08E+00		1.5E-01	3.2E-01	1.66E-01	pCi/g	90.90%	1.14E+00	1.4E-02	95.00%	1/8/02 06:01 p	6.0	SRTOT_SEP_PRECIP
							Rec Limits:	70.	130.	-0.1		G	GPC32D

Number of Results: 1

Comments:

0042

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jan-02

MATRIX SPIKE RESULTS

Lab Name: STL Richland **SDG:** W03636

Lot-Sample No.: J1K050171-1 **Report No. :** 18709 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1330316	Work Order: ENDN71AN			Report DB ID: ENDN71NW			Orig Sa DB ID: 9ENDN710						
TOTAL-URANIUM	4.49E+01		0.0E+00	1.1E+01	7.29E-05	ug/g		111.54%	4.02E+01	2.5E-01	1/9/02 09:20 a	0.2509	UTOT_KPA
	2.45E+00	RER	7.9									ML	LIP3

Number of Results: 1

Comments:

0043

STL Richland
rptSTLRchMs V3.81 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

Q-270238

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-006-07	Page 1 of 1
Collector: Bowers DL/Watson D	Company Contact: Cearlock, CS	Telephone No.: 372-9638	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Samplin	Sampling Location: 200 East & West		SAF No.: B02-006	Air Quality ☐
Ice Chest No.: ERC 99-033	Field Logbook No.: EL 1551	COA: B20CS1673C	Method of Shipment: Fed Ex	
Shipped To: Severn Trent Incorporated, Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples stored in Ref.# 3A at the 3728 Shipping Facility on 11/1/01. Collector not available to relinquish samples on 11/5/01 for shipment.

RT 11-5-01

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	1000mL	500mL	1000mL	1000mL	120mL	60mL	120mL	20mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Activity Scan		

SDG W03636 J1K050170 DH 11-5-01

RT 11-5-01

Sample No.	Matrix *	Sample Date	Sample Time									TIC TO
B13CR8 ENDN7	SOIL	11-1-01	0910	X	X	X	X	X	X	X	X	B13CL5

RT 11-5-01

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: DO WATSON/[signature]	Date/Time: 11-1-01 1115	Received By/Stored In: REF. 3A 3728 BLDG.	Date/Time: 11-1-01 1115
Relinquished By/Removed From: Ref 3A 3728	Date/Time: 0900 11-5-01	Received By/Stored In: R.T. Thoren	Date/Time: 0900 11-5-01
Relinquished By/Removed From: R.T. Thoren ERC	Date/Time: 1330 11-5-01	Received By/Stored In: [signature] 2100 CPR A. Rhineheart	Date/Time: 11-5-01 1330
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

SPECIAL INSTRUCTIONS

** The Laboratory is to report Decane as a TIC if present in detectable quantities

** The laboratory is to report both diesel and kerosene range compounds from WTPH-D analysis.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Neptunium-237; Isotopic Uranium

~~(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV), Chromium Hex - 7196~~

~~(3) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.1; Total Cyanide - 9010~~

~~(4) Semi-VOA - 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D~~

RT 11-5-01

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

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

BHI-EE-011 (10/99)

006

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9809

Sample Date & Time 11/1/01 0815

Project ID: 200CS-1 SAF Number: B02-006

Date Analyzed 11/1/01 2:40:4

Sample ID: B13CL5

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40		1.6E+01	+/-	5.3E+00	2.6E+00
Co-60	<	4.0E-01			4.0E-01
Cs-137		4.3E-01	+/-	1.8E-01	2.2E-01
Eu-152	<	7.8E-01			7.8E-01
Eu-154	<	8.2E-01			8.2E-01
Eu-155	<	6.9E-01			6.9E-01
U-235	<	1.3E+00			1.3E+00
Am-241	<	4.1E-01			4.1E-01

TIE TO B13CR8

Total GEA (pCi/g)	1.6E+01	+/-	5.5E+00

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	1.3E+00	+/-	6.1E-01	6.0E-01	8.9E+00
Gross Beta	1.6E+01	+/-	1.4E+00		

Definitions:

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

For soils and natural samples, the following applies:

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

Analyst C. W. Landes 11/2/01

Report Printed: Friday, November 02, 2001

Report To	Fax
CS Cearlock	372 9292
SJ Trent	372-9292
Joan Kessner	969-4823

SEVERN TRENT SERVICES

Sample Check-in List

Date/Time Received: 11/05/01 13:30 aR

Client: BHI SDG #: W03636 NA [ ] SAF #: B02-006 NA [ ]

Work Order Number: J1KD50170 Chain of Custody # B02-006-07

Shipping Container ID: ERC-99-033 Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [ ] No [X]
2. Custody Seals dated and signed? NA [ ] Yes [ ] No [X]
3. *Chain of Custody record present?* Yes [X] No [ ]
4. Cooler temperature: _____ NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [ ] Yes [ ] No [X]
8. Samples have:
   - [X] tape
   - [X] custody seals
   - [ ] hazard labels
   - [X] appropriate samples labels
9. Samples are:
   - [X] *in good condition*
   - [ ] broken
   - [ ] leaking
   - [ ] have air bubbles (Only for samples requiring head space)
10. Sample pH taken? NA [X] pH<2 [ ] pH>2 [ ]
11. Sample Location, Sample Collector Listed? * Yes [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: April Richland Date: 11/05/01

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/01, Rev. 4

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-006-12	Page 1 of 1
Collector: Bowers DL/Watson D	Company Contact: Cearlock, CS	Telephone No.: 372-9638	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Samplin	Sampling Location: 200 East		SAF No.: B02-006	Air Quality ☐
Ice Chest No.: ERC 99-033	Field Logbook No.: EL 1551	COA: B20CS1673C	Method of Shipment: Gov vehicle	
Shipped To: Severn Trent Incorporated, Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS
FIELD INSTRUMENTS INDICATE 672 cpm β/γ ON SOIL (DIRECT)

Special Handling and/or Storage
TIE TO B13D83

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	None
Type of Container	aG	aG	aG	aG	aG	aG	aG	P
No. of Container(s)	1	1	1	1	1	1	1	1
Volume	1000mL	500mL	1000mL	1000mL	120mL	60mL	120mL	20mL
SAMPLE ANALYSIS (due 11/26/01)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Activity Scan

RT 11-5-01

JIK060213 00 W03636

Sample No.	Matrix *	Sample Date	Sample Time								
B13D82	SOIL	11/2/01	0745	X	X	X	X	X	X	X	X
ENE46											

RT 11-6-01

Samples stored in Ref.# 3B at the 3728 Shipping Facility on 11/12/01. Collector not available to relinquish samples on 11/6/01 for shipment.
RT 11-6-01

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: DJ WATSON/[illegible]	Date/Time: 11/2/01 1115	Received By/Stored In: REF 3B 3728 BLDG	Date/Time: 11/2/01 1115
Relinquished By/Removed From: REF 3B 3728	Date/Time: 11-6-01 0700	Received By/Stored In: R Thoren	Date/Time: 11-6-01 0700
Relinquished By/Removed From: R Thoren ERC	Date/Time: 11-6-01 1050	Received By/Stored In: A. Rhineheart	Date/Time: 11-06-01 10:50
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

SPECIAL INSTRUCTIONS
** The Laboratory is to report Decane as a TIC if present in detectable quantities
** The laboratory is to report both diesel and kerosene range compounds from WTPH-D analysis.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-228); Strontium-89,90 -- Total Sr; Total Uranium; Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Neptunium-237; Isotopic Uranium
~~(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196~~
~~(3) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.1; Total Cyanide - 9010~~
~~(4) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D~~

RT 11-5-01

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

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

BHI-EE-011 (10/99)

007

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9811 **Sample Date & Time** 11/2/01 0745

Project ID: 200 CS1 **SAF Number:** B02-006 **Date Analyzed** 11/5/01 9:38:2

Sample ID: B13D83

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40		8.7E+00	+/-	3.9E+00	2.2E+00
Co-60	<	2.6E-01			2.6E-01
Cs-137	<	2.2E-01			2.2E-01
Eu-152	<	6.5E-01			6.5E-01
Eu-154	<	7.2E-01			7.2E-01
Eu-155	<	6.1E-01			6.1E-01
U-235	<	1.3E+00			1.3E+00
Am-241	<	3.7E-01			3.7E-01

Tie TO
B13D82
~~B13D73~~

NOV 2001 RECEIVED

Total GEA (pCi/g)	8.7E+00	+/-	3.9E+00

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	9.7E-01	+/-	4.7E-01	4.5E-01	3.1E+01
Gross Beta	5.8E+01	+/-	2.7E+00		

Definitions:

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

For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.
The analysis of Np-237 is based on the activity of Pa-233.
U-238daus 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-232daus 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 absorbtion
No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Analyst C. W. Landes 11/5/01

Report To	Fax
CS Cearlock	372-9292
SJ Trent	372-9292
Joan Kessner	969-4823

Report Printed: Monday, November 05, 2001

SEVERN TRENT SERVICES

Sample Check-in List

Date/Time Received: 11/06/01 1050 AR

Client: BHI SDG #: W03636 NA [ ] SAF #: B02-006 NA [ ]

Work Order Number: _____ Chain of Custody # B02-006-12

Shipping Container ID: ~~N/A~~ ERC-99-033 AR 10/06/01 Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [ ] No [X]
2. Custody Seals dated and signed? NA [ ] Yes [ ] No [X]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: _____ NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [ ] Yes [ ] No [X]
8. Samples have:
   - ____ tape
   - X custody seals
   - ____ hazard labels
   - X appropriate samples labels
9. Samples are:
   - X in good condition
   - ____ broken
   - ____ leaking
   - ____ have air bubbles (Only for samples requiring head space)
10. Sample pH taken? NA [X] pH<2 [ ] pH>2 [ ]
11. Sample Location, Sample Collector Listed? * Yes [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): _____

Sample Custodian [signature] Date: 11/06/01 AR 11/06/01

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/01, Rev. 4

11/26/01 9:59:40 AM

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

Analy Due: 01/03/2002 WO36036

Sample Preparation/Analysis

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

Balance Id: #16
Pipet #: NA
Sep1 DT/Tm Tech: NA
Sep2 DT/Tm Tech: NA
Prep Tech: JW

Batch: 1330313 SOIL pCi/g PM, Quote: JW2, 27038

SEQ Batch, Test: 1330311, 6ISO

(9)

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AE J1K050171-1-SAMP		2.02	PATB2118 PR.12/13/01 EX.3/30/02		200			
11/01/2001 9:10:00	AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g	Beta: 2.55E+01 pCi/g	
2 ENE46-1-AE J1K060213-1-SAMP		2.01	PATB2119 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
3 ENE46-1-AP-X J1K060213-1-DUP		2.01	PATB2120 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
4 EPGJP-1-AA-B J1K260000-313-BLK		2.00	PATB2121 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EPGJP-1-AC-C J1K260000-313-LCS		2.00	AMSJ0108 PR.9/19/01 EX.9/19/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 EPGJP-1-AD-BX J1K260000-313-MBLK		2.01	PATB2122 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	
7 EPGJP-1-AE-CM J1K260000-313-MLCS		2.03	AMSJ0109 PR.9/19/01 EX.9/19/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	

Sample Preparation/Analysis

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

Balance Id: 16
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: Jn

Batch: 1330313 pCi/g
SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

Comments: Samples were muffled. Jn 12-21-01
Tech. error, sample EPGJP-1-AD BX lost 1/2-3/4 sample due to spill, D.O. per instructed us to continue procedure & note it. Jn 12.21.01

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AE-SAMP Constituent List:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EPGJP1AA-BLK:

Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EPGJP1AC-LCS:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EPGJP1AD-MBLK:

Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EPGJP1AE-MLCS:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

ENDN71AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EPGJP1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EPGJP1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EPGJP1AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EPGJP1AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

1/28/02 12:01:37 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/29/01, 1/29/02, Batch: '1330313', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330313						
AC		InCnt1	GILLIAMT	1/21/02 1:48:24 PM		
SC			WagarR	IsBatched	11/26/01 9:58:47 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:56:00 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:24:35 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/18/01 3:11:05 PM	RICH-RC-5019 REVISION 2
SC			GILLIAMT	InSep1	1/21/02 1:48:24 PM	RICH-RC-5010 REVISION 3
SC			DOWNEYS	InSep2	1/24/02 7:28:20 AM	RICH-RC-5003 REVISION 4
SC			IOVINC	InCnt1	1/25/02 9:44:46 AM	RICH-RD-0008 REVISION 2
AC			DOWNEYS	1/24/02 7:28:20 AM		
AC			IOVINC	1/25/02 9:44:46 AM		

AC: Accepting Entry; SC: Status Change

11/26/01 10:03:03 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

D3 Np PrpRC5013/5077, SepRC5009(5003)
XW Neptunium-237 with tracer by alpha spec
5I CLIENT: HANFORD

Balance Id: #16
Pipet #:
Sep1 DT/Tm Tech: 19 Dec 01 14:30 DM
Sep2 DT/Tm Tech:
Prep Tech:

Analy Due: 01/03/2002 W036036

Batch: 1330326 SOIL pCi/g PM, Quote: JW2, 27038

SEQ Batch, Test: None

(g)

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AL J1K050171-1-SAMP		2.02	NPTA4577 PR.12/15/01 EX.12/15/02				200			
11/01/2001 9:10:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
2 ENDN7-1-AT-X J1K050171-1-DUP		2.01	NPTA4578 PR.12/15/01 EX.12/15/02				200			
11/01/2001 9:10:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
3 ENE46-1-AL J1K060213-1-SAMP		2.03	NPTA4579 PR.12/15/01 EX.12/15/02				200			
11/02/2001 7:45:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
4 EPGLC-1-AA-B J1K260000-326-BLK		2.00	NPTA4580 PR.12/15/01 EX.12/15/02				200			
11/01/2001 9:10:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	
5 EPGLC-1-AC-C J1K260000-326-LCS		2.00	NPSE0001 PR.12/15/01 EX.12/15/02				200			
11/01/2001 9:10:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AL-SAMP Constituent List:
Np-237 RDL:1 pCi/g LCL: UCL: RPD: Np-239 RDL: pCi/g LCL:20 UCL:115 RPD:35

Sample Preparation/Analysis

D3 Np PrpRC5013/5077, SepRC5009(5003)
XW Neptunium-237 with tracer by alpha spec
5I CLIENT: HANFORD

Balance Id:
Pipet #: _____
Sep1 DT/Tm Tech: _____
Sep2 DT/Tm Tech: _____
Prep Tech: _____

Batch: 1330326 **pCi/g**

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
EPGLC1AA-BLK:
 Np-237      RDL:1          pCi/g     LCL:       UCL:       RPD:       Np-239     RDL:          pCi/g     LCL:20     UCL:115    RPD:35

EPGLC1AC-LCS:
 Np-237      RDL:1          pCi/g     LCL:70     UCL:130    RPD:35     Np-239     RDL:          pCi/g     LCL:20     UCL:115    RPD:35

ENDN71AL-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
EPGLC1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
EPGLC1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

12/21/01 8:36:02 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/21/01, 12/22/01, Batch: '1330326', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330326						
AC		InCnt1	OConnellD	12/11/01 2:57:44 PM		
SC			WagarR	IsBatched	11/26/01 10:02:28 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:57:44 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:21:02 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/18/01 3:10:09 PM	RICH-RC-5077 REVISION 1
SC			ManisD	InSep1	12/19/01 5:07:44 PM	RICH-RC-5009 REVISION 1
SC			DAWKINSO	InCnt1	12/19/01 7:54:07 PM	RICH-RD-0003 REVISION 2
AC			WAGNERJ	12/13/01 5:21:02 PM		Bob Beistio
AC			WAGNERJ	12/18/01 3:10:09 PM		Petra Davidson
AC			ManisD	12/19/01 5:07:44 PM		
AC			DAWKINSO	12/19/01 7:54:07 PM		
AC			DAWKINSO	12/19/01 7:54:39 PM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 6

ICOCFractions v4.4.3

0078

11/26/01 9:59:36 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Analy Due: 01/03/2002 W031636

Batch: 1330311 SOIL pCi/g PM, Quote: JW2, 27038

SEQ Batch, Test: 1330313, 6ISX

Balance Id: #14
Pipet #: NA
Sep1 DT/Tm Tech: NA
Sep2 DT/Tm Tech: NA
Prep Tech: JW

(3)

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AD J1K050171-1-SAMP		2.02	PATB2118 PR.12/13/01 EX.3/30/02		200			
11/01/2001 9:10:00	AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g	Beta: 2.55E+01 pCi/g	
2 ENE46-1-AD J1K060213-1-SAMP		2.01	PATB2119 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
3 ENE46-1-AN-X J1K060213-1-DUP		2.01	PATB2120 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
4 EPGJN-1-AA-B J1K260000-311-BLK		2.00	PATB2121 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EPGJN-1-AC-C J1K260000-311-LCS		2.00	PUSK0329 PT.12/12/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 EPGJN-1-AD-BX J1K260000-311-MBLK		2.01	PATB2122 PR.12/13/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	
7 EPGJN-1-AE-CM J1K260000-311-MLCS		2.03	PUSK0330 PT.12/12/01 EX.3/30/02					
11/02/2001 7:45:00	AmtRec:		#Containers: 1		Scr Rst:	Alpha:	Beta:	

Sample Preparation/Analysis

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id: /6
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: JW

Batch: 1330311 pCi/g

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

Comments: Samples were muffled. JW 12.21.01
Tech. error, sample EPGJN-1-AD BX lost 1/2 - 3/4 sample due to spill, D.O per instructed us to continue procedure & note it. JW 12.21.01.

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AD-SAMP Constituent List:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

EPGJN1AA-BLK:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

EPGJN1AC-LCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EPGJN1AD-MBLK:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

EPGJN1AE-MLCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

ENDN71AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EPGJN1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EPGJN1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EPGJN1AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EPGJN1AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

1/24/02 4:14:33 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/25/01, 1/25/02, Batch: '1330311', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330311						
AC		InCnt1	**GILLIAMT**	1/21/02 1:48:11 PM		
SC			WagarR	IsBatched	11/26/01 9:58:47 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:55:41 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:24:50 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/18/01 3:10:52 PM	RICH-RC-5019 REVISION 2
SC			GILLIAMT	InSep1	1/21/02 1:48:11 PM	RICH-RC-5010 REVISION 3
SC			DOWNEYS	InSep2	1/22/02 6:36:23 AM	RICH-RC-5039 REVISION 3
SC			BlackCL	InCnt1	1/22/02 1:44:09 PM	RICH-RD-0008 REVISION 2
AC			**DOWNEYS**	1/22/02 6:36:23 AM		
AC			**BlackCL**	1/22/02 1:44:09 PM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

0081 Grp Rec Cnt: 3

ICOCFractions v4.4.3

11/26/01 9:59:49 AM

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

Analy Due: 01/03/2002 W036036

Batch: 1330317 **SOIL** **pCi/g**

SEQ Batch, Test: None

Sample Preparation/Analysis

9R Thiso PrpRC5013/RC5019, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
5I CLIENT: HANFORD

PM, Quote: JW2, 27038

Balance Id: A 14

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: Jm

(9)

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AG J1K050171-1-SAMP		2.02	THTC3444 REF.12/3/01 EX.1/7/02		200			
11/01/2001 9:10:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g	Beta: 2.55E+01 pCi/g	
2 ENE46-1-AG J1K060213-1-SAMP		2.03	THTC3445 REF.12/3/01 EX.1/7/02					
11/02/2001 7:45:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
3 ENE46-1-AT-X J1K060213-1-DUP		2.03	THTC3446 REF.12/3/01 EX.1/7/02					
11/02/2001 7:45:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
4 EPGJ3-1-AA-B J1K260000-317-BLK		2.00	THTC3447 REF.12/3/01 EX.1/7/02					
11/02/2001 7:45:00		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EPGJ3-1-AC-C J1K260000-317-LCS		2.00	THSI0414 REF.12/3/01 EX.1/7/02					
11/02/2001 7:45:00		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

Comments: Samples were muffled. Jm 12-20-01

0082

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AG-SAMP Constituent List:

Th-228	RDL:1	pCi/g	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Th-232	RDL:1	pCi/g	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

Sample Preparation/Analysis

9R Thiso PrpRC5013/RC5019, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:
Pipet #: _____
Sep1 DT/Tm Tech: _____
Sep2 DT/Tm Tech: _____
Prep Tech: _____

Batch: 1330317 **pCi/g**
SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
EPGJ31AA-BLK:
  Th-228      RDL:1        pCi/g    LCL:      UCL:      RPD:      Th-230      RDL:1       pCi/g    LCL:      UCL:      RPD:
  Th-232      RDL:1        pCi/g    LCL:      UCL:      RPD:      Th-234      RDL:        pCi/g    LCL:20    UCL:105   RPD:35

EPGJ31AC-LCS:
  Th-230      RDL:1        pCi/g    LCL:70    UCL:130   RPD:35    Th-234      RDL:        pCi/g    LCL:20    UCL:105   RPD:35

KNDN71AG-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
EPGJ31AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
EPGJ31AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

0083

1/15/02 4:10:13 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/16/01, 1/16/02, Batch: '1330317', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330317						
AC		InCnt1	**WAGNERJ**	12/18/01 3:11:36 PM		Petra daivdson
SC			WagarR	IsBatched	11/26/01 9:58:47 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:56:31 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:24:08 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/18/01 3:11:36 PM	RICH-RC-5019 REVISION 2
SC			HAMMERL	InSep1	1/8/02 3:36:35 PM	RICH-RC-5084 REVISION 0
SC			DOWNEYS	InSep2	1/9/02 7:18:01 AM	RICH-RC-5003 REVISION 4
SC			McPHERONC	InSep2	1/9/02 7:18:43 AM	RICH-RC-5003 REVISION 4
SC			IOVINC	InCnt1	1/9/02 8:10:55 AM	RICH-RD-0008 REVISION 2
AC			**HAMMERL**	1/8/02 3:36:35 PM		
AC			**DOWNEYS**	1/9/02 7:18:01 AM		
AC			**McPHERONC**	1/9/02 7:18:43 AM		
AC			**IOVINC**	1/9/02 8:10:55 AM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 5

ICOCFractions v4.4.3

0084

11/26/01 9:59:43 AM

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

Sample Preparation/Analysis

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

Balance Id: 16
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: Jw

Analy Due: 01/03/2002 WO36036

Batch: 1330315 SOIL pCi/g **PM, Quote: JW2, 27038**

SEQ Batch, Test: None

(9)

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AA J1K050171-1-SAMP		1.03	UITC6575 PR.12/01/01 EX.12/01/02		200			
11/01/2001 9:10:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g	Beta: 2.55E+01 pCi/g	
2 ENE46-1-AA J1K060213-1-SAMP		1.03	UITC6576 PR.12/01/01 EX.12/01/02					
11/02/2001 7:45:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
3 ENE46-1-AQ-X J1K060213-1-DUP		1.01	UITC6577 PR.12/01/01 EX.12/01/02					
11/02/2001 7:45:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
4 EPGJV-1-AA-B J1K260000-315-BLK		1.00	UITC6578 PR.12/01/01 EX.12/01/02					
11/02/2001 7:45:00		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EPGJV-1-AC-C J1K260000-315-LCS		1.00	UISH0127 PR.10/01/01 EX.10/01/02					
11/02/2001 7:45:00		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

Comments: Samples were muffled. Jw 12-20-01

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AA-SAMP Constituent List:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1	pCi/g	LCL:	UCL:	RPD:

Sample Preparation/Analysis

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

Balance Id:
Pipet #: _____
Sep1 DT/Tm Tech: _____
Sep2 DT/Tm Tech: _____
Prep Tech: _____

Batch: 1330315 **pCi/g**

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
EPGJV1AA-BLK:
  U-232      RDL:        pCi/g   LCL:20   UCL:105   RPD:35   U-234   RDL:1   pCi/g   LCL:   UCL:   RPD:
  U-235      RDL:1       pCi/g   LCL:     UCL:      RPD:     U-238   RDL:1   pCi/g   LCL:   UCL:   RPD:

EPGJV1AC-LCS:
  U-232      RDL:        pCi/g   LCL:20   UCL:105   RPD:35   Uranium RDL:    pCi/g   LCL:70 UCL:130 RPD:35

ENDN71AA-SAMP Calc Info:
     Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
EPGJV1AA-BLK:
     Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
EPGJV1AC-LCS:
     Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

0086

ICOC Fraction Transfer/Status Report

ByDate: 12/10/01, 1/10/02, Batch: '1330315', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330315						
AC		InCnt1	OConnellD	12/11/01 2:56:17 PM		
SC			WagarR	IsBatched	11/26/01 9:58:47 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:56:17 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:24:23 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/18/01 3:11:18 PM	RICH-RC-5019 REVISION 2
SC			HAMMERL	InSep1	12/30/01 8:09:47 AM	RICH-RC-5079 REVISION 1
SC			McPHERONC	InSep2	1/3/02 10:11:58 AM	RICH-RC-5039 REVISION 3
SC			IOVINC	InCnt1	1/3/02 10:20:48 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ	12/13/01 5:24:23 PM		Bob Belsito
AC			WAGNERJ	12/18/01 3:11:18 PM		Petra Davidson
AC			HAMMERL	12/30/01 8:09:47 AM		
AC			McPHERONC	1/3/02 10:11:58 AM		
AC			IOVINC	1/3/02 10:20:48 AM		

0087

AC: Accepting Entry, SC: Status Change

11/26/01 10:02:57 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

Balance Id: 10
Pipet #: N/A
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: Jw

Analy Due: 01/03/2002 W036036

Batch: 1330323 SOIL pCi/g **PM, Quote: JW2, 27038**

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot (g) Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AK J1K050171-1-SAMP		310.9				S200	600	G8	12/19 0606	12/18/2001 OR
11/01/2001 9:10:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
2 ENDN7-1-AQ-X J1K050171-1-DUP		305.0						G5	12/20 0525	12/19/2001 OR
11/01/2001 9:10:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
3 ENE46-1-AK J1K060213-1-SAMP		331.2						G4	12/20 0526	12/19/2001 OR
11/02/2001 7:45:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
4 EPGKT-1-AA-BX J1K260000-323-MBLK		348.0	OSBK					G7	12/20 0528	12/19/2001 OR
11/01/2001 9:10:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	
5 EPGKT-1-AC-CM J1K260000-323-MLCS		200.01	CaL 491					G8	12/20 1521	12/18/2001 OR
10-1-01 ~~11/01/2001~~ 9:10:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	

Comments: Jw 12-14-01

0080

.11 Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

NDN71AK-SAMP Constituent List:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:

Sample Preparation/Analysis

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

Balance Id:

Pipet #: _____

Sep1 DT/Tm Tech: _____

Sep2 DT/Tm Tech: _____

Prep Tech: _____

Batch: 1330323 **pCi/g**

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
Eu-155	RDL:1.00E-01 pCi/g	LCL:	UCL:	RPD:						
3PGKT1AA-MBLK:										
Co-60	RDL:5.00E-02 pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01 pCi/g		LCL:	UCL:	RPD:
Eu-152	RDL:1.00E-01 pCi/g	LCL:	UCL:	RPD:	Eu-154	RDL:1.00E-01 pCi/g		LCL:	UCL:	RPD:
Eu-155	RDL:1.00E-01 pCi/g	LCL:	UCL:	RPD:						
3PGKT1AC-MLCS:										
Cs-137	RDL:0.1 pCi/g	LCL:70	UCL:130	RPD:35	K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35
Ra-226	RDL:0.1 pCi/g	LCL:70	UCL:130	RPD:35	RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
RA-228DA	RDL:0.2 pCi/g	LCL:70	UCL:130	RPD:35	U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35

3NDN71AK-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
3PGKT1AA-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
3PGKT1AC-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

0089

ICOC Fraction Transfer/Status Report

ByDate: 11/26/01, 12/27/01, Batch: '1330323', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330323						
AC		InPrep	OConnellD	12/11/01 2:57:16 PM		
SC			WagarR	IsBatched	11/26/01 10:02:28 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:57:16 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:22:05 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:22:18 PM	RICH-RC-5017 REVISION 3
AC			WAGNERJ	12/13/01 5:22:05 PM		Bob Belsito
AC			WAGNERJ	12/13/01 5:22:18 PM		Bob Belsito

0090

AC: Accepting Entry; SC: Status Change

11/26/01 10:02:54 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

AY Gross Alpha PrpRC5013/5020
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

Balance Id: 1S
Pipet #: N/A
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: Gw

Analy Due: 01/03/2002 W031036

Batch: 1330321 SOIL pCi/g PM, Quote: JW2, 27038

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit (g)	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry (mg)	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AH J1K050171-1-SAMP	0.0500				1.5	50.0	100	10A	2038	12/17/2001 DA
11/01/2001 9:10:00		AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
2 ENDN7-1-AP-X J1K050171-1-DUP	0.0502					50.2		10C	2038	12/17/2001 DA
11/01/2001 9:10:00		AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
3 ENE46-1-AH J1K060213-1-SAMP	0.0505					50.5		10D	2038	12/17/2001 DA
11/02/2001 7:45:00		AmtRec: LP,20ML		#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
4 EPGKK-1-AA-B J1K260000-321-BLK	0.0500					0.1		10E	2038	12/17/2001 DA
11/01/2001 9:10:00		AmtRec:		#Containers: 1		Scr Rst:	Alpha:		Beta:	
5 EPGKK-1-AC-C J1K260000-321-LCS	0.0500	ASD1463 PR.11/10/01 EX.11/10/02				0.4		10F	2038	12/17/2001
11/01/2001 9:10:00		AmtRec:		#Containers: 1		Scr Rst:	Alpha:		Beta:	

Comments:

0091

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AH-SAMP Constituent List:
ALPHA RDL:1.00E+01 pCi/g LCL: UCL: RPD:
EPGKK1AA-BLK:

ICOC Fraction Transfer/Status Report

ByDate: 11/28/01, 12/29/01, Batch: '1330321', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330321						
AC		InCnt1	OConnellD	12/11/01 2:56:58 PM		
SC			WagarR	IsBatched	11/26/01 10:02:28 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:56:58 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:22:37 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:22:56 PM	RICH-RC-5020 REVISION 1
SC			DAWKINSO	InCnt1	12/17/01 6:38:41 PM	RICH-RD-0003 REVISION 2
AC			WAGNERJ	12/13/01 5:22:37 PM		Bob Belsito
AC			WAGNERJ	12/13/01 5:22:56 PM		Bob Belsito
AC			DAWKINSO	12/17/01 6:38:41 PM		

0092

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.4.3

11/26/01 9:59:51 AM

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

Sample Preparation/Analysis

BB Gross Beta PrpRC5013/5020
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Balance Id: 15
Pipet #: N/A
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: [illegible]

Analy Due: 01/03/2002 W036316

Batch: 1330319 SOIL pCi/g PM, Quote: JW2, 27038

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit (g)	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry (mg)	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AJ J1K050171-1-SAMP		0.2000			1.5	200.0	100	26A	2016	12/17/2001
11/01/2001 9:10:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g		Beta: 2.55E+01 pCi/g	
2 ENE46-1-AJ J1K060213-1-SAMP		0.2007				200.7		26B	2016	12/17/2001
11/02/2001 7:45:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
3 ENE46-1-AU-X J1K060213-1-DUP		0.2003				200.3		26C	2016	12/17/2001
11/02/2001 7:45:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
4 EPGJ8-1-AA-B J1K260000-319-BLK		0.2000				0.1		26D	2016	12/17/2001
11/02/2001 7:45:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	
5 EPGJ8-1-AC-C J1K260000-319-LCS		0.2000	BESD0242 PR.11/10/01 EX.11/10/02			0.5		27A	2016	12/17/2001
11/02/2001 7:45:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	

Comments:

0093

11 Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

NDN71AJ-SAMP Constituent List:
BETA RDL:1.50E+01 pCi/g LCL: UCL: RPD:
PGJ81AA-BLK:

12/28/01 9:03:24 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/28/01, 12/29/01, Batch: '1330319', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330319						
AC		InCnt1	OConnellD	12/11/01 2:56:45 PM		
SC			WagarR	IsBatched	11/26/01 9:58:47 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:56:45 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:23:29 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:23:48 PM	RICH-RC-5020 REVISION 1
SC			DAWKINSO	InCnt1	12/17/01 6:38:55 PM	RICH-RD-0003 REVISION 2
AC			WAGNERJ	12/13/01 5:23:29 PM		Bob Belsito
AC			WAGNERJ	12/13/01 5:23:48 PM		Bob Belsito
AC			DAWKINSO	12/17/01 6:38:55 PM		

0094

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt:4

ICOCFractions v4.4.3

SEVERN TRENT SERVICES

*** RE-ANALYSIS REQUEST ***

DUE DATE 1-2-01

CUSTOMER BHI

ANALYSIS T Sr

MATRIX soil

LOT NUMBER JIK060213

SAMPLE DELIVERY GROUP W03636

OLD BATCH NUMBER 1336325

NEW BATCH NUMBER 2004332

LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) ENE46 1AC	no ppt formed
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
LAB QC ID	Assigned with new batch.

1/4/02 3:01:35 PM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

CH Sr-Total PrpRC5013, SepRC5006
TH Total Strontium by GPC
5I CLIENT: HANFORD

Analy Due: 01/03/2002

Balance Id: 16
Pipet #:
Sep1 DT/Tm Tech: 1-8-02 14:20
Sep2 DT/Tm Tech:
Prep Tech: JW

Batch: 2004332 SOIL pCi/g PM, Quote: JW2, 27038

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit (g)	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry (mg)	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENE46-1-AV-X J1K060213-1-DUP		6.03	SRTA6544 PR.11/02/01 EX.8/28/02			59.4	50	32A	1826	1/8/2002 OD
11/02/2001 7:45:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
2 ENE46-2-AC J1K060213-1-SAMP		6.02	SRTA6545 PR.11/02/01 EX.8/28/02			75.1		32B	1826	
11/02/2001 7:45:00			AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g		Beta: 1.02E+02 pCi/g	
3 EQ9N0-1-AA-B J2A040000-332-BLK		6.00	SRTA6546 PR.11/02/01 EX.8/28/02			87.0		32C	1826	
11/02/2001 7:45:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	
4 EQ9N0-1-AC-C J2A040000-332-LCS		6.00	STSB0530 PR.8/22/01 EX.8/28/02			90.9		32D	1826	
11/02/2001 7:45:00			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	

Comments: 1-7-02

0090

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENE461AV-DUP Constituent List:
Sr-90 RDL:1 pCi/g LCL:70 UCL:130 RPD:35
EQ9N01AA-BLK:
Sr-90 RDL:1 pCi/g LCL: UCL: RPD:
EQ9N01AC-LCS:
Sr-90 RDL:1 pCi/g LCL:70 UCL:130 RPD:35

ENE461AV-DUP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EQ9N01AA-BLK:

ICOC Fraction Transfer/Status Report

ByDate: 12/10/01, 1/10/02, Batch: '2004332', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2004332						
AC		InCnt1	WAGNERJ	1/5/02 3:40:46 PM		
SC			WagarR	IsBatched	1/4/02 3:02:10 PM	ICOC_RADCALC v4.4.3
SC			WAGNERJ	InPrep2	1/5/02 3:40:46 PM	RICH-RC-5013 REVISION 4
SC			SteffensB	InSep1	1/8/02 11:57:58 AM	RICH-RC-5006 REVISION 4
SC			DAWKINSO	InCnt1	1/8/02 3:26:37 PM	RICH-RD-0003 REVISION 2
AC			DAWKINSO	1/8/02 3:26:37 PM		

0097

AC: Accepting Entry; SC: Status Change

11/26/01 9:59:46 AM

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

Sample Preparation/Analysis

7Z Unat_Laser PrpRC5013/RC5019, SepRC5015
SS Total Uranium by KPA
5I CLIENT: HANFORD

Balance Id: XX 14
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: Jr

Analy Due: 01/03/2002 W03636

Batch: 1330316 SOIL ug/g **PM, Quote: JW2, 27038**

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit (g)	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 ENDN7-1-AM								
J1K050171-1-SAMP		0.2503						
11/01/2001 9:10:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g	Beta: 2.55E+01 pCi/g	
2 ENDN7-1-AN-S								
J1K050171-1-MS		0.2509						
11/01/2001 9:10:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 8.24E+00 pCi/g	Beta: 2.55E+01 pCi/g	
3 ENE46-1-AM								
J1K060213-1-SAMP		0.2509						
11/02/2001 7:45:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
4 ENE46-1-AR-X								
J1K060213-1-DUP		0.2508						
11/02/2001 7:45:00		AmtRec: LP,20ML	#Containers: 2		Scr Rst:	Alpha: 7.73E+00 pCi/g	Beta: 1.02E+02 pCi/g	
5 EPGJ0-1-AA-B								
J1K260000-316-BLK		0.25						
11/02/2001 7:45:00		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 EPGJ0-1-AC-C								
J1K260000-316-LCS		0.25						
11/02/2001 7:45:00		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

0098

Sample Preparation/Analysis

7Z Unat_Laser PrpRC5013/RC5019, SepRC5015
SS Total Uranium by KPA
5I CLIENT: HANFORD

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Batch: 1330316 **ug/g**

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , JW2, 27038

ENDN71AM-SAMP Constituent List:
Uranium RDL:1 ug/g LCL:70 UCL:130 RPD:35
ENDN71AN-MS Constituent List:

EPGJ01AA-BLK:
Uranium RDL:1 ug/g LCL: UCL: RPD:
EPGJ01AC-LCS:
Uranium RDL:1 ug/g LCL:70 UCL:130 RPD:35

ENDN71AM-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
ENDN71AN-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EPGJ01AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EPGJ01AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

0099

ICOC Fraction Transfer/Status Report

ByDate: 12/11/01, 1/11/02, Batch: '1330316', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1330316						
AC		InCnt1	OConnellD	12/11/01 2:54:46 PM		
SC			WagarR	IsBatched	11/26/01 9:58:47 AM	ICOC_RADCALC v4.4.1
SC			OConnellD	InPrep	12/11/01 2:54:46 PM	RICHRC5013 REVISION 4
SC			WAGNERJ	InPrep	12/13/01 5:25:03 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/18/01 3:11:53 PM	RICH-RC-5019 REVISION 2
SC			WAGNERJ	InPrep2	12/18/01 3:12:04 PM	RICH-RC-5015 REVISION 2
SC			GIBBINSW	InCnt1	12/27/01 6:18:27 AM	RICH-RC-5058 REVISION 4
AC			WAGNERJ	12/13/01 5:25:03 PM		Bob Belsito
AC			WAGNERJ	12/18/01 3:11:53 PM		Petra Davidson
AC			WAGNERJ	12/18/01 3:12:04 PM		Petra Davidson
AC			GIBBINSW	12/27/01 6:18:27 AM		

0100

AC: Accepting Entry; SC: Status Change

ORIGINAL
Daynes

SDR # B02-039
Revision #: 0
Date Initiated: 12/14/01

SAMPLE DISPOSITION RECORD

SAF: B02-006
OU: 200-CS-1
Project ID: 100-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 Operable Unit

Laboratory: Severn Trent Incorporated

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 2
ID Numbers: B13CR8, B13D82
Matrix: Soil
Collection Date: 11/01/01 – 11/02/01

Issue Background:

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

Type: Other

Description: Sample Authorization Form Error Results in Analysis Performed At Wrong Laboratory

Disposition:

Description: Because of an error in Sample Authorization Form B02-006, Cr-VI analysis was erroneously performed at the Severn-Trent - St. Louis laboratory. All Cr-VI analyses performed by Severn-Trent, Incorporated are done at the Richland Laboratory because the St. Louis Laboratory Cr-VI method is not approved for use by ERC projects. The Cr-VI analyses associated with the listed samples were subsequently cancelled, and the St. Louis laboratory was requested to re-report the final results without the Cr-VI data (see SDR B02-040).

Justification: All Cr-VI analyses performed by Severn-Trent, Incorporated are to be done at the Richland laboratory because the St. Louis laboratory Cr-VI analysis method is not approved for ERC use.

Approval Signatures:

S. J. Trent — 12/19/01
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 12/19/01
Task Manager (Print/Sign Name) — Date

ORIGINAL
Dayne

SDR # B02-040
Revision #: 0
Date Initiated: 12/14/01

SAMPLE DISPOSITION RECORD

SAF: B02-006
OU: 200-CS-1
Project ID: 100-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 Operable Unit

Laboratory: Severn Trent Incorporated

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 2
ID Numbers: B13CR8, B13D82
Matrix: Soil
Collection Date: 11/01/01 – 11/02/01

Issue Background:

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

Type: Cancellation of Analyses

Description: Sample Authorization Form Error Results In Analysis Performed At Wrong Laboratory

Disposition:

Description: The Cr-VI analyses associated with the listed samples were cancelled and the laboratory was requested to re-report the final results without the Cr-VI data because the St. Louis laboratory is not approved to perform Cr-VI analyses for the ERC (see SDR B02-039).

Justification: All Cr-VI analyses performed by Severn-Trent, Incorporated are to be done at the Richland laboratory because the St. Louis laboratory Cr-VI analysis method is not approved for ERC use.

Approval Signatures:

S. J. Trent — 12/19/01
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 12/19/01
Task Manager (Print/Sign Name) — Date

ORIGINAL
Hayes

SDR # B02-032
Revision #: 0
Date Initiated: 11/26/01

SAMPLE DISPOSITION RECORD

SAF: B02-006
OU: 200-CS-1
Project ID: 200-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 Operable Unit

Laboratory: Severn Trent Incorporated, Richland

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 2
ID Numbers: B13CR9, B13D82
Matrix: Soil
Collection Date: 11/01/01 – 11/02/01

Issue Background:

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

Type: Analysis Holding Time Exceeded

Description: PCB Analysis Analytical Holding Time Exceeded

Disposition:

Description: Because of a sample login error at the laboratory, the PCB analyses for the listed samples were not conducted within the analytical holding time. The PCB data for the listed samples will be flagged with a "J" qualifier indicating the reported values are estimates.

Justification: The "J" qualified PCB data can be used by the Groundwater/Vadose Zone Integration Project. In addition, the listed samples were sample splits and do not impact the quality of the PCB data associated with the primary characterization samples.

Approval Signatures:

S. J. Trent — 12/19/01
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 12/19/01
Task Manager (Print/Sign Name) — Date

ORIGINAL
Hayes

SDR # B02-022
Revision #: 0
Date Initiated: 11/7/01

SAMPLE DISPOSITION RECORD

SAF: B02-006
OU: 200-CS-1
Project ID: 100-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 Operable Unit

Laboratory: Severn Trent Incorporated

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 1
ID Numbers: B13CR8
Matrix: Soil
Collection Date: 11/01/01

Issue Background:

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

Type: Addition of Analyses

Description: Addition of Method 8015

Disposition:

Description: The laboratory requested to perform method 8015 in place of method 8260 for the compounds ethanol and 1-propanol. The laboratory indicated that method 8015 would provide better results for the listed compounds. The Groundwater/Vadose Zone Integration project agreed to the change of methodologies, and the laboratory was subsequently instructed to analyze for ethanol and 1-propanol using method 8015. In addition, ERC Sample Management added method 8015 to SAF/FSR B02-006 and B02-008 for the Severn Trent Incorporated laboratory.

Justification: Method 8015 will provide better results for the 1-propanol and ethanol compounds.

Approval Signatures:

S. J. Trent — 11/16/01
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 11/16/01
Task Manager (Print/Sign Name) — Date

SEVERN TRENT SERVICES

STL St. Louis

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

December 5, 2001

Attention: Joan Kessner

Project Number	:	44956
SAF	:	B02-006
SDG	:	W03636
Number of Samples	:	two
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	November 19, 2001

II. Introduction

Between November 5 and November 7, 2001, two (2) "solid" samples were received by STL-St. Louis for chemical analysis. The samples were received at the St. Louis lab at a temperature of 2 degrees C. 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: none

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.

2 Days Hold.

SEVERN TRENT SERVICES

STL St. Louis

Bechtel Hanford Incorporated
December 5, 2001
Project Number: 44956
SDG: W03636
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 method blank associated with these samples had Zinc at a level above the reporting limit (2.0 mg/kg). Both samples had Zinc at levels ten times greater than that found in the blank. The data is reported with NCM 06-07333.

Copper and silver were analyzed with a five fold dilution due to inter-element interference from Iron. Due to the applied dilution, the Silver MS/MSD recoveries were zero.

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.

The MS recovery for total Sulfide is out low. LCS recovery was within criteria.

VOA: 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 Method Blank associated with sample B13CR8 had Methylene Chloride levels exceeding the reporting limit. This compound is a known laboratory contaminant. See NCM 06-07211.

The requested "add-on" compounds, Ethanol and 1-propanol, were analyzed by method 8015, due to their poor purging characteristic.

BNA: 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 this data.

SEVERN TRENT SERVICES

STL St. Louis

Bechtel Hanford Incorporated
December 5, 2001
Project Number: 44956
SDG: W03636
Page 3

TPH: 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 Method Blank associated with sample B13CR8 had low surrogate recoveries. The LCS for this batch had low spike recovery. The sample and it's MS/MSD met all criteria. The client was contacted and the lab was instructed to report the data.

PCB: 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 samples were initially logged in for an incorrect analysis (leaching before extraction). The error was discovered after the sample holding time had expired. The samples were re-prepped for the correct analysis and that data is reported. All QC criteria was met.

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

Marti Ward
St. Louis Project Manager

4 Days 1/17/02

SEVERN
TRENT
SERVICES

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

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

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

January 15, 2002

Attention: Joan Kessner

Project Number	:	44956
SAF	:	B02-006
SDG	:	W03636
Number of Samples	:	two
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	November 19, 2001

The BNA data for this SDG has been revised. The lab reported the wrong target compound in the original report (bis-2-ethyl-hexyl phthalate instead of tributyl phosphate). The data was reviewed for tributyl phosphate. This is not a compound the lab normally calibrates for. The samples were analyzed under a calibration that did not contain that compound. A library search had been run that showed no hits for tributyl phosphate. There were no "extra" peaks found in the library searches. This data was faxed to the client. The samples were then re-injected, outside holding time, under a curve that did contain tributyl phosphate. The compound was not detected. That data is included in this report. The data sheets were revised to show a "non-detect" for Tributyl phosphate and a note to indicate that the samples were re-injected to confirm the lack of that target compound.

The lab apologizes for the problems created by this non-conformance.

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

4A
Dayes
11/24/02

Clouseau Nonconformance Memo

NCM #:	06-07333		
NCM Initiated By:	Kay Clay	Classification:	Deficiency
Date Opened:	11/26/2001	Status:	CLOSED
Date Closed:	11/26/2001	Production Area:	Metals
		Tests:	6010B
		Lot #'s (Sample #'s):	F1K060131 (1), F1K070156 (1), F1K080000 (163),
		QC Batches:	1312163

Nonconformance: QC: Method Blank Contamination
Subcategory: Metals method blank (Zinc, Iron only)

Problem Description / Root Cause

Name	Date	Description
Kay Clay	11/26/2001	LOT F1K060131 (Batch QC for LOT F1K070156)

SDG W03636

Zinc was observed in the method blank above the reporting limit. The associated samples exhibit concentrations greater than ten times the concentrations observed in the method blankand therefore do not require re-analysis. Original results are reported.

OBSERVATIONS

Copper and silver required a 5 X dilution because the initial undiluted analysis indicated by the "K" flag that there was inter-element interferences for samples ENEFX and ENGC2. In this case the interferring element was iron. The samples were diluted and the results were reported from the 5 X dilution.

The recoveries of the silver matrix spike and matrix spike duplicate were 0%. This was due to the dilution required for the high iron concentraion. The silver spiking level of 50 ug/L was diluted by 5 X and the 10ug/L level is at the 10 ug/L reporting limit.

Ed Kao 11/26/2001

Corrective Action

Name	Date	Corrective Action
Kay Clay	11/26/2001	
Ed Kao	11/26/2001	NA

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
BECHTEL HANFORD, INC.	WARDM	11/26/2001	11/26/2001	by narrative	

Response	Response Note
Process "as-is"	

Date Printed: 11/26/01

Clouseau Nonconformance Memo

NCM #:	06-07333		
NCM Initiated By:	Kay Clay	Classification:	Deficiency
Date Opened:	11/26/2001	Status:	[redacted]
Date Closed:	11/26/2001	Production Area:	Metals
		Tests:	6010B
		Lot #'s (Sample #'s):	F1K060131 (1), F1K070156 (1), F1K080000 (163), F1K060131 (1), F1K070156 (1), F1K080000 (163),
		QC Batches:	1312163
Nonconformance:	QC: Method Blank Contamination		
Subcategory:	Metals method blank (Zinc, Iron only)		

Quality Assurance Verification

Verified By	Due Date	Status	Notes
WILDE		Verification not required or requested	

Approval History

Date Approved	Approved By	Position

Date Printed: 11/26/01

Clouseau Nonconformance Memo

NCM #:	06-07211	Classification:	Deficiency
NCM Initiated By:	Tracey Poppe	Status:	CLOSED
Date Opened:	11/14/2001	Production Area:	GC/MS VOA
Date Closed:	11/26/2001	Tests:	8260B
		Lot #'s (Sample #'s):	F1K060131 (1), F1K130109 (11,13,14,15,16,17,19,20,21, 22,23,8,9), (135,136),
		QC Batches:	1318135, 1318136

Nonconformance: QC: Method Blank Contamination
Subcategory: VOA method blank (MeCl2 and/or Acetone only)

Problem Description / Root Cause

Name	Date	Description
Tracey Poppe	11/14/2001	Methylene chloride and/or Acetone was observed in the method blank above the reporting limit. Methylene chloride and Acetone are recognized potential laboratory contaminants. Concentrations up to five times the level observed in the method blank, in associated laboratory samples, may be attributed to its presence in the laboratory.

Corrective Action

Name	Date	Corrective Action
Tracey Poppe	11/14/2001	None.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
BECHTEL HANFORD, INC.	WARDM	11/16/2001	11/16/2001	by narrative	

Response	Response Note
Process "as-is"	

Quality Assurance Verification

Verified By	Due Date	Status	Notes
WILDE		Verification not required or requested	Approved by J. Kleszczewski for E. Wild.

Approval History

Date Approved	Approved By	Position

Date Printed: 11/26/01

W03636

SAMPLE SUMMARY

F1K060131

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
ENEFX	001	B13CR8	11/01/01	09:10

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.

SAMPLE SUMMARY

F1K070156

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
ENGC2	001	B13D82	11/02/01	07:45

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

F1K060131

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Non-Aqueous	SW846 9045A	
Chloride	MCAWW 300.0A	MCAWW 300.0A
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Hexavalent Chromium	SW846 7196A	SW846 7196A/DI
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Nitrogen, Ammonia	MCAWW 350.1	
Nonhalogenated Organics Using GC/FID	SW846 8015B	
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Phosphate as P, Ortho	MCAWW 300.0A	MCAWW 300.0A
PCBs by SW-846 8082	SW846 8082	SW846 3550
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Sulfate	MCAWW 300.0A	MCAWW 300.0A
Sulfide	SW846 9030	
Total Cyanide	SW846 9010A	SW846 9010A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Volatile Organics by GC/MS	SW846 8260B	SW846 5030

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 SEVERN TRENT LABORATORIES, INC Run Date: 11/06/01
Page 1 CLIENT ANALYSIS SUMMARY Time: 9:59:03
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 44956
PROJECT MANAGER: MARTI WARD LAB ID: F-1K060131-001
PROJECT #: 200 SOURCE CHAR WORK ORDER: ENEFX
REPORT TO: Joan Kessner RECEIVING DATE: 11/05/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 11/01/01
SITE: B02-006 ANALYTICAL DUE DATE: 11/23/01N
AMOUNT REC"D: 60G,2X120G,500G,2XLG REPORT DUE DATE: 11/26/01
STORAGE LOC: T115 PRIORITY: 18
LOT COMMENTS: Anions/Metals: CRDL standard required + SAMPLING TIME: 9:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B13CR8
QC PACKAGE: Report SDG# : W03636
SAMPLE COMMENTS:

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3)	06	11/06/01	0/00/00	2/08/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-WM-01) ENEFX-1-AA Protocol: A QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B Trace)	06	11/06/01	0/00/00	4/30/02
METALS, TOTAL - Soils				
MT6010_S AG,AS,BA,BE,CD,CR,CU,NI,PB,SE,VX,ZN				
(A-46-QM-01) ENEFX Protocol: A QC Program: STANDARD TEST SET				
Mercury (7471A, Cold Vapor) - Solids	06	11/06/01	0/00/00	11/29/01
METALS, TOTAL (Method Exclusive) - Solids				
M7471_S HG				
(A-70-09-01) ENEFX Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	11/06/01	11/29/01	11/29/01
LEACHATE, DI (Routine)				
(A-82-HN-01) ENEFX-1-AD Protocol: A QC Program: STANDARD TEST SET				
Chloride (300.0, Ion Chromatography)	06	11/06/01	2/08/02	3/08/02
LEACHATE, DI (Routine)				
(A-82-CX-01) ENEFX-1-AT Protocol: A QC Program: STANDARD TEST SET				
Fluoride (300.0, Ion Chromatography)	06	11/06/01	2/08/02	3/08/02
LEACHATE, DI (Routine)				
(A-82-C8-01) ENEFX-1-AU Protocol: A QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography)	06	11/06/01	2/08/02	2/10/02
LEACHATE, DI (Routine)				
(A-82-C9-01) ENEFX-1-AV Protocol: A QC Program: STANDARD TEST SET				
Nitrite as N (300.0, Ion Chromatography)	06	11/06/01	2/08/02	2/10/02
LEACHATE, DI (Routine)				
(A-82-GO-01) ENEFX-1-AW Protocol: A QC Program: STANDARD TEST SET				

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

Run Date: 11/06/01
Time: 9:59:03
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 SOURCE CHAR
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-006
AMOUNT REC"D: 60G,2X120G,500G,2XLG
STORAGE LOC: T115
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
SAMPLE ID: B13CR8
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 44956
LAB ID: F-1K060131-001
WORK ORDER: ENEFX
RECEIVING DATE: 11/05/01
SAMPLING DATE: 11/01/01
ANALYTICAL DUE DATE: 11/23/01N
REPORT DUE DATE: 11/26/01
PRIORITY: 18
+ SAMPLING TIME: 9:10
RECEIVING TIME: 9:00

SDG# : W03636

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) ENEFX-1-AX Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/10/02
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) ENEFX-1-A0 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) ENEFX-1-A1 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/29/01
Chromium, Hexavalent (7196A) LEACHATE, DI (Routine) (A-82-EA-01) ENEFX-1-A2 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/12/02
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) ENEFX-1-A3 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/15/01
Sulfide (9030) LEACHATE, DI (Routine) (A-82-P3-01) ENEFX-1-A4 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/29/01	11/30/01
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) ENEFX-1-A5 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/03/01
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) ENEFX-1-A6 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) ENEFX-1-A7 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01

PSL20300
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SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 11/06/01
Time: 9:59:03
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 SOURCE CHAR
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-006
AMOUNT REC"D: 60G,2X120G,500G,2XLG
STORAGE LOC: T115
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
SAMPLE ID: B13CR8
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 44956
LAB ID: F-1K060131-001
WORK ORDER: ENEFX
RECEIVING DATE: 11/05/01
SAMPLING DATE: 11/01/01
ANALYTICAL DUE DATE: 11/23/01N
REPORT DUE DATE: 11/26/01
PRIORITY: 18
+ SAMPLING TIME: 9:10
RECEIVING TIME: 9:00

SDG# : W03636

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
PCBs (8082)	06	11/06/01	11/15/01	12/25/01
SPLP-W(1312) -> LIQ/LIQ SEPF W/ ACID STRIP (PCB) - NOMINAL				
STL: Aroclors				
(A-I1-QH-01) ENEFX-1-A8 Protocol: A QC Program: STANDARD TEST SET				
Volatile Organics, GC/MS (8260B)	06	11/06/01	0/00/00	11/15/01
PURGE AND TRAP - 5 mL purge				
STL: SW-846 8260B				
(A-15-QK-01) ENEFX-1-A9 Protocol: A QC Program: STANDARD TEST SET				
Volatile Organics (8015B)	06	11/06/01	0/00/00	11/15/01
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
STL: Nonhalogenated Organics by GC-FID				
(A-88-QT-01) ENEFX-1-CA Protocol: A QC Program: STANDARD TEST SET				

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 11/06/01
Page 1 CLIENT ANALYSIS SUMMARY Time: 9:59:03
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 44956
PROJECT MANAGER: MARTI WARD LAB ID: F-1K060131-001-D
PROJECT #: 200 SOURCE CHAR WORK ORDER: ENEFX MSD
REPORT TO: Joan Kessner RECEIVING DATE: 11/05/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 11/01/01
SITE: B02-006 ANALYTICAL DUE DATE: 11/23/01N
AMOUNT REC"D: 60G,2X120G,500G,2XLG REPORT DUE DATE: 11/26/01
STORAGE LOC: T115 PRIORITY: 18
LOT COMMENTS: Anions/Metals: CRDL standard required + SAMPLING TIME: 9:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B13CR8
QC PACKAGE: Report SDG# : W03636
SAMPLE COMMENTS:

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
✓ Chromium, Hexavalent (7196A) LEACHATE, DI (Routine) (A-82-EA-01) ENEFX-1-C3 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/12/02
✓ Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) ENEFX-1-C5 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
✓ Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) ENEFX-1-C7 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
✓ PCBs (8082) SPLP-W(1312) -> LIQ/LIQ SEPF W/ ACID STRIP (PCB) - NOMINAL STL: Aroclors (A-I1-QH-01) ENEFX-1-C9 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
✓ Volatile Organics, GC/MS (8260B) PURGE AND TRAP - 5 mL purge STL: SW-846 8260B (A-15-QK-01) ENEFX-1-DC Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/15/01
✓ Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S AG,AS,BA,BE,CD,CR,CU,NI,PB,SE,VX,ZN (A-46-QM-01) ENEFX Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	4/30/02
✓ Mercury (7471A, Cold Vapor) - Solids METALS, TOTAL (Method Exclusive) - Solids M7471_S HG (A-70-O9-01) ENEFX Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/29/01
✓ Volatile Organics (8015B) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION STL: Nonhalogenated Organics by GC-FID	06	11/06/01	0/00/00	11/15/01

(A-88-QT-01) ENEFX-1-D9 Protocol: A QC Program: STANDARD TEST SET

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Page 1

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

Run Date: 11/06/01
Time: 9:59:03
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 SOURCE CHAR
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-006
AMOUNT REC"D: 60G,2X120G,500G,2XLG
STORAGE LOC: T115
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
SAMPLE ID: B13CR8
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 44956
LAB ID: F-1K060131-001-S
WORK ORDER: ENEFX MS
RECEIVING DATE: 11/05/01
SAMPLING DATE: 11/01/01
ANALYTICAL DUE DATE: 11/23/01N
REPORT DUE DATE: 11/26/01
PRIORITY: 18
+ SAMPLING TIME: 9:10
RECEIVING TIME: 9:00

SDG# : W03636

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) ENEFX-1-CP Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) ENEFX-1-CQ Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/29/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) ENEFX-1-CR Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/15/01
Sulfide (9030) LEACHATE, DI (Routine) (A-82-P3-01) ENEFX-1-CT Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/29/01	11/30/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) (A-82-HN-01) ENEFX-1-CU Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/29/01	11/29/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) ENEFX-1-CV Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) ENEFX-1-CW Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) ENEFX-1-CX Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/10/02
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) ENEFX-1-C0 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/10/02

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 11/06/01
Page 2 CLIENT ANALYSIS SUMMARY Time: 9:59:03
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 44956
PROJECT MANAGER: MARTI WARD LAB ID: F-1K060131-001-S
PROJECT #: 200 SOURCE CHAR WORK ORDER: ENEFX MS
REPORT TO: Joan Kessner RECEIVING DATE: 11/05/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 11/01/01
SITE: B02-006 ANALYTICAL DUE DATE: 11/23/01N
AMOUNT REC"D: 60G,2X120G,500G,2XLG REPORT DUE DATE: 11/26/01
STORAGE LOC: T115 PRIORITY: 18
LOT COMMENTS: Anions/Metals: CRDL standard required + SAMPLING TIME: 9:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B13CR8
QC PACKAGE: Report SDG# : W03636
SAMPLE COMMENTS:

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) ENEFX-1-C1 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/10/02
Chromium, Hexavalent (7196A) LEACHATE, DI (Routine) (A-82-EA-01) ENEFX-1-C2 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/12/02
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) ENEFX-1-C4 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) ENEFX-1-C6 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
PCBs (8082) SPLP-W(1312) -> LIQ/LIQ SEPF W/ ACID STRIP (PCB) - NOMINAL STL: Aroclors (A-I1-QH-01) ENEFX-1-C8 Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/15/01	12/25/01
Volatile Organics, GC/MS (8260B) PURGE AND TRAP - 5 mL purge STL: SW-846 8260B (A-15-QK-01) ENEFX-1-DA Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/15/01
Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S AG,AS,BA,BE,CD,CR,CU,NI,PB,SE,VX,ZN (A-46-QM-01) ENEFX Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	4/30/02
Mercury (7471A, Cold Vapor) - Solids METALS, TOTAL (Method Exclusive) - Solids M7471_S HG (A-70-O9-01) ENEFX Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/29/01

PSL20300
Page 3

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

Run Date: 11/06/01
Time: 9:59:03
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 SOURCE CHAR
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-006
AMOUNT REC"D: 60G,2X120G,500G,2XLG
STORAGE LOC: T115
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
SAMPLE ID: B13CR8
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 44956
LAB ID: F-1K060131-001-S
WORK ORDER: ENEFX MS
RECEIVING DATE: 11/05/01
SAMPLING DATE: 11/01/01
ANALYTICAL DUE DATE: 11/23/01N
REPORT DUE DATE: 11/26/01
PRIORITY: 18
+ SAMPLING TIME: 9:10
RECEIVING TIME: 9:00
SDG# : W03636

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Volatile Organics (8015B)	06	11/06/01	0/00/00	11/15/01

NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
STL: Nonhalogenated Organics by GC-FID
(A-88-QT-01) ENEFX-1-D8 Protocol: A QC Program: STANDARD TEST SET

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 11/06/01
Page 1 CLIENT ANALYSIS SUMMARY Time: 9:59:03
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 44956
PROJECT MANAGER: MARTI WARD LAB ID: F-1K060131-001-X
PROJECT #: 200 SOURCE CHAR WORK ORDER: ENEFX SMPDUP
REPORT TO: Joan Kessner RECEIVING DATE: 11/05/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 11/01/01
SITE: B02-006 ANALYTICAL DUE DATE: 11/23/01N
AMOUNT REC"D: 60G,2X120G,500G,2XLG REPORT DUE DATE: 11/26/01
STORAGE LOC: T115 PRIORITY: 18
LOT COMMENTS: Anions/Metals: CRDL standard required + SAMPLING TIME: 9:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B13CR8 DUP
QC PACKAGE: Report SDG# : W03636
SAMPLE COMMENTS:

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) ENEFX-1-CC Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) ENEFX-1-CD Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/29/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) ENEFX-1-CE Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/15/01
Sulfide (9030) LEACHATE, DI (Routine) (A-82-P3-01) ENEFX-1-CF Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/29/01	11/30/01
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) ENEFX-1-CG Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	0/00/00	11/03/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) (A-82-HN-01) ENEFX-1-CH Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	11/29/01	11/29/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) ENEFX-1-CJ Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) ENEFX-1-CK Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	3/08/02
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) ENEFX-1-CL Protocol: A QC Program: STANDARD TEST SET	06	11/06/01	2/08/02	2/10/02

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 11/06/01
Page 2 CLIENT ANALYSIS SUMMARY Time: 9:59:03
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 44956
PROJECT MANAGER: MARTI WARD LAB ID: F-1K060131-001-X
PROJECT #: 200 SOURCE CHAR WORK ORDER: ENEFX SMPDUP
REPORT TO: Joan Kessner RECEIVING DATE: 11/05/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 11/01/01
SITE: B02-006 ANALYTICAL DUE DATE: 11/23/01N
AMOUNT REC"D: 60G,2X120G,500G,2XLG REPORT DUE DATE: 11/26/01
STORAGE LOC: T115 PRIORITY: 18
LOT COMMENTS: Anions/Metals: CRDL standard required + SAMPLING TIME: 9:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B13CR8 DUP
QC PACKAGE: Report SDG# : W03636
SAMPLE COMMENTS:

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine)	06	11/06/01	2/08/02	2/10/02
(A-82-GO-01) ENEFX-1-CM Protocol: A QC Program: STANDARD TEST SET				
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine)	06	11/06/01	2/08/02	2/10/02
(A-82-DO-01) ENEFX-1-CN Protocol: A QC Program: STANDARD TEST SET				

W03636

STL St. Louis

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-006-07	Page 1 of 1
Collector: Bowers DL/Watson D	Company Contact: Cearlock, CS	Telephone No.: 372-9638	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Samplin	Sampling Location: 200 East & West		SAF No.: B02-006	Air Quality ☐
Ice Chest No.: ERC 01-027	Field Logbook No.: EL 1551	COA: B20CS1673C	Method of Shipment: Fed Ex	
Shipped To: Severn Trent Incorporated, ~~Richland~~ RT 11-5-01 ST LOUIS	Offsite Property No.: A020030		Bill of Lading/Air Bill No.: 42357954-8648	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples stored in Ref.# 3A at the 3728 Shipping Facility on 11/1/01. Collector not available to relinquish samples on 11/1/01 for shipment.

RT 11-5-01

W03636

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	None		
Type of Container	RT 11-5-01	aG	aG	aG	aG	aG	aG	1		
No. of Container(s)	1	1	1	1	1	1	1	RT 11-5-01		
Volume	1000mL	500mL	1000mL	1000mL	120mL	60mL	120mL	20mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Activity Scan	TIE	TO

Sample No.	Matrix *	Sample Date	Sample Time										
B13CR8	SOIL	11-1-01	0910	X	X	X	X	X	X	X	X	M3C25	

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: DS Watson/[signature]	Date/Time: 11-1-01 1115	Received By/Stored In: REF. 3A 3728 BLDG.	Date/Time: 11-1-01 1115
Relinquished By/Removed From: Ref 3A 3728	Date/Time: 11-5-01 0900	Received By/Stored In: R.T. Thoren	Date/Time: 11-5-01 0900
Relinquished By/Removed From: R.T. Thoren ERC	Date/Time: 11-5-01 0900	Received By/Stored In: [signature]	Date/Time: 11-6-01 8/5
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: [signature] 11-6-01	Date/Time: 800
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

** The Laboratory is to report Decane as a TIC if present in detectable quantities

** The laboratory is to report both diesel and kerosene range compounds from WTPH-D analysis. RT 11-5-01

~~(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Neptunium-237; Isotopic Uranium~~

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196

(3) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.1; Total Cyanide - 9010

(4) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

BHI-EE-011 (10/99)

2

STL

SEVERN TRENT SERVICES

Lot No.: F1K060131

W03636

Condition Upon Receipt Form
St. Louis Laboratory

Client: Bechtel Hanford

Date: 11.6.01 Time: 845

Quote No: 44956

Initiated by: EW

Shipper/No: FedX 4235 7954 8648

COC/RFA Numbers: B02-006-07

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

1.	(Y) N	Sample received in undamaged condition.	5.	(Y) N	Sample volume sufficient for analysis.
2.	(Y) N	Sample received within 4°C ± 2°C*	6.	(Y) N	Sample received with Chain of Custody.
		Record temperature: 2°	7.	(Y) N	Chain of Custody matches sample IDs on containers.
3.	Y N (N/A)	Sample received with proper pH**.	8.	(Y) N	Custody seal received intact and tamper evident on cooler.
4.	(Y) N	Sample received in proper containers.	9.	(Y) 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: 11-6-01

Project Management Review: MWard Date: 11.6.01

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: 11/07/01
Time: 10:59:19
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 SOURCE CHAR
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-006
AMOUNT REC"D: 60G,2X120G,500G,2XLG
STORAGE LOC: VK1,T113
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
SAMPLE ID: B13D82
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 44956
LAB ID: F-1K070156-001
WORK ORDER: ENGC2
RECEIVING DATE: 11/07/01
SAMPLING DATE: 11/02/01
ANALYTICAL DUE DATE: 11/26/01N
REPORT DUE DATE: 11/28/01
PRIORITY: 18
+ SAMPLING TIME: 7:45
RECEIVING TIME: 8:45

SDG# : W03636

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) ENGC2-1-AA Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	0/00/00	2/09/02
✓ Inductively Coupled Plasma (6010B Trace) METALS, TOTAL - Soils MT6010_S AG,AS,BA,BE,CD,CR,CU,NI,PB,SE,VX,ZN (A-46-QM-01) ENGC2 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	0/00/00	5/01/02
✓ Mercury (7471A, Cold Vapor) - Solids METALS, TOTAL (Method Exclusive) - Solids M7471_S HG (A-70-O9-01) ENGC2 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	0/00/00	11/30/01
✓ Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) (A-82-HN-01) ENGC2-1-AD Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	11/30/01	11/30/01
✓ Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) ENGC2-1-AT Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	3/09/02
✓ Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) ENGC2-1-AU Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	3/09/02
✓ Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) ENGC2-1-AV Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	2/11/02
✓ Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) ENGC2-1-AW Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	2/11/02

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 11/07/01
Page 2 CLIENT ANALYSIS SUMMARY Time: 10:59:19
STL St. Louis User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 44956
PROJECT MANAGER: MARTI WARD LAB ID: F-1K070156-001
PROJECT #: 200 SOURCE CHAR WORK ORDER: ENGC2
REPORT TO: Joan Kessner RECEIVING DATE: 11/07/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 11/02/01
SITE: B02-006 ANALYTICAL DUE DATE: 11/26/01N
AMOUNT REC"D: 60G,2X120G,500G,2XLG REPORT DUE DATE: 11/28/01
STORAGE LOC: VK1,T113 PRIORITY: 18
LOT COMMENTS: Anions/Metals: CRDL standard required + SAMPLING TIME: 7:45
MATRIX: SOLID RECEIVING TIME: 8:45
SAMPLE ID: B13D82
QC PACKAGE: Report SDG# : W03636
SAMPLE COMMENTS:

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) ENGC2-1-AX Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	2/11/02
✓ Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) ENGC2-1-A0 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	3/09/02
✓ Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) ENGC2-1-A1 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	0/00/00	11/30/01
✓ Chromium, Hexavalent (7196A) LEACHATE, DI (Routine) (A-82-EA-01) ENGC2-1-A2 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	2/09/02	2/13/02
✓ Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) ENGC2-1-A3 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	0/00/00	11/16/01
✓ Sulfide (9030) LEACHATE, DI (Routine) (A-82-P3-01) ENGC2-1-A4 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	11/30/01	12/01/01
✓ pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) ENGC2-1-A5 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	0/00/00	11/04/01
✓ Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) ENGC2-1-A6 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	11/16/01	12/26/01
✓ Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) ENGC2-1-A7 Protocol: A QC Program: STANDARD TEST SET	06	11/07/01	11/16/01	12/26/01

PSL20300
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SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 11/07/01
Time: 10:59:19
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 SOURCE CHAR
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-006
AMOUNT REC"D: 60G,2X120G,500G,2XLG
STORAGE LOC: VK1,T113
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
SAMPLE ID: B13D82
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 44956
LAB ID: F-1K070156-001
WORK ORDER: ENGC2
RECEIVING DATE: 11/07/01
SAMPLING DATE: 11/02/01
ANALYTICAL DUE DATE: 11/26/01N
REPORT DUE DATE: 11/28/01
PRIORITY: 18
+ SAMPLING TIME: 7:45
RECEIVING TIME: 8:45
SDG# : W03636

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
✓PCBs (8082)	06	11/07/01	11/16/01	12/26/01
SPLP-W(1312) -> LIQ/LIQ SEPF W/ ACID STRIP (PCB) - NOMINAL				
STL: Aroclors				
(A-I1-QH-01) ENGC2-1-A8 Protocol: A QC Program: STANDARD TEST SET				
✓Volatile Organics, GC/MS (8260B)	06	11/07/01	0/00/00	11/16/01
PURGE AND TRAP - 5 mL purge				
STL: SW-846 8260B				
(A-15-QK-01) ENGC2-1-A9 Protocol: A QC Program: STANDARD TEST SET				
✓Volatile Organics (8015B)	06	11/07/01	0/00/00	11/16/01
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-QT-01) ENGC2-1-CA Protocol: A QC Program: STANDARD TEST SET				

W03636

STL St. Louis

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-006-12	Page 1 of 1
Collector: Bowers DL/Watson D	Company Contact: Cearlock, CS	Telephone No.: 372-9638	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Samplin	Sampling Location: 200 East		SAF No.: B02-006	Air Quality ☐
Ice Chest No.: ERC 01-022	Field Logbook No.: EL 1551	COA: B20CS1673C	Method of Shipment: Gov vehicle / FEDEX	
Shipped To: Severn Trent Incorporated, ~~Richland~~ RT 11-5-01 ST Louis	Offsite Property No.: A020029		Bill of Lading/Air Bill No.: 4238 7954-8730	

POSSIBLE SAMPLE HAZARDS/REMARKS
FIELD INSTRUMENTS INDICATE 672 cpm β/γ ON SOIL (DIRECT)
TICTO B13D83

Samples stored in Ref.#3B at the 3728 Shipping Facility on 11/2/01.
Collector not available to relenquish samples on 11/6/01 for shipment.

RT 11-6-01

W03636

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	None	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	1000mL	500mL	1000mL	1000mL	120mL	60mL	120mL	20mL		
	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Activity Scan		

RT 11-5-01

Sample No.	Matrix *	Sample Date	Sample Time									
B13D82	SOIL	11/2/01	0745	X	X	X	X	X	X	X	X	2x1g, 500g, 2x120g, 60g

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: DJ WATSON/[illegible]	Date/Time: 11/2/01 1115	Received By/Stored In: REF 3B 3728 BLDG	Date/Time: 11/2/01 1115
Relinquished By/Removed From: Ref 3B 3728	Date/Time: 11-6-01 0700	Received By/Stored In: R.P. Thorer	Date/Time: 11-6-01 0700
Relinquished By/Removed From: R.P. Thorer ERC	Date/Time: 11-6-01 0700	Received By/Stored In: FEDEX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time:	Received By/Stored In: Jill Clark	Date/Time: 110701 0845
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
** The Laboratory is to report Decane as a TIC if present in detectable quantities
** The laboratory is to report both diesel and kerosene range compounds from WTPH-D analysis.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Neptunium-237; Isotopic Uranium
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.1; Total Cyanide - 9010
(4) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

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

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

BHI-EE-011 (10/99)

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9811 **Sample Date & Time** 11/2/01 0745

Project ID: 200 CSI **SAF Number:** B02-006 **Date Analyzed** 11/5/01 9:38:2

Sample ID: B13D83

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40		8.7E+00	+/-	3.9E+00	2.2E+00
Co-60	<	2.6E-01			2.6E-01
Cs-137	<	2.2E-01			2.2E-01
Eu-152	<	6.5E-01			6.5E-01
Eu-154	<	7.2E-01			7.2E-01
Eu-155	<	6.1E-01			6.1E-01
U-235	<	1.3E+00			1.3E+00
Am-241	<	3.7E-01			3.7E-01

TIE TO
B13D82

NOV 2001
RECEIVED

Total GEA (pCi/g)	8.7E+00	+/-	3.9E+00

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	9.7E-01	+/-	4.7E-01	4.5E-01	3.1E+01
Gross Beta	5.8E+01	+/-	2.7E+00		

Definitions:

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

For soils and natural samples, the following applies:

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

Analyst C. W. Landes 11/5/01

Report To	Fax
CS Cearlock	372-9292
SJ Trent	372-9292
Joan Kessner	969-4823

Report Printed: Monday, November 05, 2001

STL S

SEVERN TRENT SERVICES

Lot No.: FK070156

W03636

Condition Upon Receipt Form
St. Louis Laboratory

Client: Bechtel Hanford

Date: 110701 Time: 0845

Quote No: 44952

Initiated by: [illegible]

Shipper/No: 4235 7954 8730 Fed Ex

COC/RFA Numbers: B02-0006-12

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

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

*** Temperature Variance Does Not Affect the Following Analyses:** Rad

**** For DOE-AL (Pantex, LANL, Sandia, Tinnet) 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: Joe Clarke Date: 110701

Project Management Review: Mulard Date: 11-7-01

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

SL-ADMIN-0004, Revised 5/24/01
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W03636

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

GC/MS Volatiles

Lot-Sample #...: F1K060131-001 Work Order #...: ENEFX1A9 Matrix.....: SOLID
Date Sampled...: 11/01/01 Date Received..: 11/05/01
Prep Date.....: 11/13/01 Analysis Date..: 11/13/01
Prep Batch #...: 1318135
Dilution Factor: 1
% Moisture.....: 4.5 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	10	ug/kg	0.81
Vinyl chloride	ND	5.2	ug/kg	0.83
Bromomethane	ND	10	ug/kg	0.63
Chloroethane	ND	10	ug/kg	2.3
Acetone	**7.8 J,B**	**21**	**ug/kg**	**2.8**
1,1-Dichloroethene	ND	5.2	ug/kg	1.4
Methylene chloride	**7.5 B**	**5.2**	**ug/kg**	**0.56**
Carbon disulfide	ND	5.2	ug/kg	0.48
1,1-Dichloroethane	ND	5.2	ug/kg	0.40
2-Butanone	ND	21	ug/kg	7.0
1,2-Dichloroethene (total)	ND	5.2	ug/kg	0.87
Chloroform	ND	5.2	ug/kg	0.25
1,1,1-Trichloroethane	ND	5.2	ug/kg	0.46
Carbon tetrachloride	ND	5.2	ug/kg	0.68
1,2-Dichloroethane	ND	5.2	ug/kg	0.45
Benzene	ND	5.2	ug/kg	0.39
Trichloroethene	ND	5.2	ug/kg	0.32
1,2-Dichloropropane	ND	5.2	ug/kg	0.22
Bromodichloromethane	ND	5.2	ug/kg	0.47
4-Methyl-2-pentanone	ND	21	ug/kg	1.3
cis-1,3-Dichloropropene	ND	5.2	ug/kg	0.54
Toluene	ND	5.2	ug/kg	0.57
trans-1,3-Dichloropropene	ND	5.2	ug/kg	0.32
1,1,2-Trichloroethane	ND	5.2	ug/kg	0.45
2-Hexanone	ND	21	ug/kg	1.7
Tetrachloroethene	ND	5.2	ug/kg	0.38
Dibromochloromethane	ND	5.2	ug/kg	0.40
Chlorobenzene	ND	5.2	ug/kg	0.36
Ethylbenzene	ND	5.2	ug/kg	0.93
Xylenes (total)	ND	5.2	ug/kg	1.1
Styrene	ND	5.2	ug/kg	0.39
Bromoform	ND	5.2	ug/kg	0.65
1,1,2,2-Tetrachloroethane	ND	5.2	ug/kg	0.46

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	93	(64 - 112)
Toluene-d8	98	(80 - 114)
Dibromofluoromethane	107	(73 - 127)
1,2-Dichloroethane-d4	106	(68 - 135)

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

GC/MS Volatiles

Lot-Sample #...: F1K060131-001 **Work Order #...:** ENEFX1A9 **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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

BECHTEL HANFORD, INC.

B13CR8

GC/MS Volatiles

Lot-Sample #: F1K060131-001 **Work Order #:** ENEFX1A9 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/kg

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENEFX1DA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F1K060131-001 ENEFX1DC-MSD
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01
Prep Date.....: 11/13/01 **Analysis Date..:** 11/13/01
Prep Batch #...: 1318135
Dilution Factor: 1 **% Moisture.....:** 4.5

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	ND	52.4	62.4	ug/kg	119		SW846 8260B
	ND	52.4	59.2	ug/kg	113	5.2	SW846 8260B
1,4-Dichlorobenzene	ND	52.4	48.6	ug/kg	93		SW846 8260B
	ND	52.4	47.8	ug/kg	91	1.6	SW846 8260B
Benzene	ND	52.4	53.5	ug/kg	102		SW846 8260B
	ND	52.4	52.7	ug/kg	101	1.5	SW846 8260B
Trichloroethene	ND	52.4	54.5	ug/kg	104		SW846 8260B
	ND	52.4	52.7	ug/kg	101	3.4	SW846 8260B
Toluene	ND	52.4	50.6	ug/kg	97		SW846 8260B
	ND	52.4	50.0	ug/kg	96	1.2	SW846 8260B
Chlorobenzene	ND	52.4	50.7	ug/kg	97		SW846 8260B
	ND	52.4	49.6	ug/kg	95	2.3	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	93	(64 - 112)
	90	(64 - 112)
Toluene-d8	99	(80 - 114)
	97	(80 - 114)
Dibromofluoromethane	106	(73 - 127)
	103	(73 - 127)
1,2-Dichloroethane-d4	99	(68 - 135)
	99	(68 - 135)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

GC/MS Volatiles

Lot-Sample #...: F1K070156-001 **Work Order #...:** ENGC21A9 **Matrix.....:** SOLID
Date Sampled...: 11/02/01 **Date Received..:** 11/07/01
Prep Date.....: 11/14/01 **Analysis Date..:** 11/14/01
Prep Batch #...: 1318580
Dilution Factor: 1
% Moisture.....: 6.0 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	11	ug/kg	0.82
Vinyl chloride	ND	5.3	ug/kg	0.84
Bromomethane	ND	11	ug/kg	0.64
Chloroethane	ND	11	ug/kg	2.3
Acetone	**10 J**	**21**	**ug/kg**	**2.8**
1,1-Dichloroethene	ND	5.3	ug/kg	1.4
Methylene chloride	**11 B**	**5.3**	**ug/kg**	**0.56**
Carbon disulfide	ND	5.3	ug/kg	0.49
1,1-Dichloroethane	ND	5.3	ug/kg	0.40
2-Butanone	ND	21	ug/kg	7.1
1,2-Dichloroethene (total)	ND	5.3	ug/kg	0.88
Chloroform	ND	5.3	ug/kg	0.26
1,1,1-Trichloroethane	ND	5.3	ug/kg	0.47
Carbon tetrachloride	ND	5.3	ug/kg	0.69
1,2-Dichloroethane	ND	5.3	ug/kg	0.46
Benzene	ND	5.3	ug/kg	0.39
Trichloroethene	ND	5.3	ug/kg	0.33
1,2-Dichloropropane	ND	5.3	ug/kg	0.22
Bromodichloromethane	ND	5.3	ug/kg	0.48
4-Methyl-2-pentanone	ND	21	ug/kg	1.3
cis-1,3-Dichloropropene	ND	5.3	ug/kg	0.55
Toluene	ND	5.3	ug/kg	0.57
trans-1,3-Dichloropropene	ND	5.3	ug/kg	0.33
1,1,2-Trichloroethane	ND	5.3	ug/kg	0.46
2-Hexanone	ND	21	ug/kg	1.8
Tetrachloroethene	ND	5.3	ug/kg	0.38
Dibromochloromethane	ND	5.3	ug/kg	0.40
Chlorobenzene	ND	5.3	ug/kg	0.36
Ethylbenzene	ND	5.3	ug/kg	0.95
Xylenes (total)	ND	5.3	ug/kg	1.1
Styrene	ND	5.3	ug/kg	0.39
Bromoform	ND	5.3	ug/kg	0.66
1,1,2,2-Tetrachloroethane	ND	5.3	ug/kg	0.47

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	94	(64 - 112)
Toluene-d8	99	(80 - 114)
Dibromofluoromethane	110	(73 - 127)
1,2-Dichloroethane-d4	109	(68 - 135)

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

GC/MS Volatiles

Lot-Sample #...: F1K070156-001 **Work Order #...:** ENGC21A9 **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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

BECHTEL HANFORD, INC.

B13D82

GC/MS Volatiles

Lot-Sample #: F1K070156-001 **Work Order #:** ENGC21A9 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/kg

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENWLF1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K140000-135

Prep Date.....: 11/13/01
Analysis Date..: 11/13/01 **Prep Batch #...:** 1318135
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Acetone	**7.3 J**	**20**	**ug/kg**	**SW846 8260B**
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	**16**	**5.0**	**ug/kg**	**SW846 8260B**
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B
Styrene	**0.39 J**	**5.0**	**ug/kg**	**SW846 8260B**
Bromoform	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	91	(64 - 112)
Toluene-d8	94	(80 - 114)
Dibromofluoromethane	106	(73 - 127)
1,2-Dichloroethane-d4	102	(68 - 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENWLF1AA **Matrix.....:** SOLID

NOTE(S):

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

J Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F1K140000-135 B **Work Order #:** ENWLF1AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/kg

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1K070156 **Work Order #...:** EN1E91AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K140000-580

Prep Date.....: 11/14/01
Analysis Date..: 11/14/01 **Prep Batch #...:** 1318580
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Acetone	ND	20	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	**4.3 J**	**5.0**	**ug/kg**	**SW846 8260B**
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B
Styrene	**0.45 J**	**5.0**	**ug/kg**	**SW846 8260B**
Bromoform	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	92	(64 - 112)
Toluene-d8	97	(80 - 114)
Dibromofluoromethane	109	(73 - 127)
1,2-Dichloroethane-d4	106	(68 - 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1K070156 **Work Order #...:** EN1E91AA **Matrix.....:** SOLID

NOTE(S):

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

J Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F1K140000-580 B **Work Order #:** EN1E91AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/kg

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENWLF1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K140000-135
Prep Date.....: 11/13/01 **Analysis Date..:** 11/13/01
Prep Batch #...: 1318135
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,1-Dichloroethene	**50.0**	**60.0**	**ug/kg**	**120**	**SW846 8260B**
1,4-Dichlorobenzene	**50.0**	**46.4**	**ug/kg**	**93**	**SW846 8260B**
Benzene	**50.0**	**52.2**	**ug/kg**	**104**	**SW846 8260B**
Trichloroethene	**50.0**	**52.0**	**ug/kg**	**104**	**SW846 8260B**
Toluene	**50.0**	**47.6**	**ug/kg**	**95**	**SW846 8260B**
Chlorobenzene	**50.0**	**48.2**	**ug/kg**	**96**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	92	(64 - 112)
Toluene-d8	96	(80 - 114)
Dibromofluoromethane	107	(73 - 127)
1,2-Dichloroethane-d4	103	(68 - 135)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F1K070156 **Work Order #...:** EN1E91AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K140000-580
Prep Date.....: 11/14/01 **Analysis Date..:** 11/14/01
Prep Batch #...: 1318580
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,1-Dichloroethene	**50.0**	**55.0**	**ug/kg**	**110**	**SW846 8260B**
1,4-Dichlorobenzene	**50.0**	**46.4**	**ug/kg**	**93**	**SW846 8260B**
Benzene	**50.0**	**51.3**	**ug/kg**	**103**	**SW846 8260B**
Trichloroethene	**50.0**	**51.1**	**ug/kg**	**102**	**SW846 8260B**
Toluene	**50.0**	**48.0**	**ug/kg**	**96**	**SW846 8260B**
Chlorobenzene	**50.0**	**49.0**	**ug/kg**	**98**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	94	(64 - 112)
Toluene-d8	100	(80 - 114)
Dibromofluoromethane	111	(73 - 127)
1,2-Dichloroethane-d4	106	(68 - 135)

NOTE(S):

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

Bold print denotes control parameters

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

GC/MS Semivolatiles

Lot-Sample #...:	F1K060131-001	**Work Order #...:**	ENEFX1A6	**Matrix.....:**	SOLID
Date Sampled...:	11/01/01	**Date Received..:**	11/05/01		
Prep Date.....:	11/08/01	**Analysis Date..:**	11/13/01		
Prep Batch #...:	1312263				
Dilution Factor:	1				
% Moisture.....:	4.5	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
bis(2-Ethylhexyl) phthalate	ND	350	ug/kg	38
Tributyl phosphate	ND	350		38

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	61	(22 - 119)
Phenol-d5	66	(24 - 127)
Nitrobenzene-d5	60	(39 - 106)
2-Fluorobiphenyl	63	(42 - 106)
2,4,6-Tribromophenol	53	(42 - 120)
Terphenyl-d14	48	(18 - 97)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Sample was re-injected on 1-10-02 to confirm that tributyl phosphate was not found.

mw
1.14.02

46 Days
1/29/02

BECHTEL HANFORD, INC.

B13CR8

GC/MS Semivolatiles

Lot-Sample #: F1K060131-001 **Work Order #:** ENEFX1A6 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown aldol condensate		9400	M	3.537	ug/kg

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F1K060131
MS Lot-Sample #: F1K060131-001
Date Sampled...: 11/01/01
Prep Date.....: 11/08/01
Prep Batch #...: 1312263
Dilution Factor: 1

Work Order #...: ENEFX1C4-MS
ENEFX1C5-MSD
Date Received..: 11/05/01
Analysis Date..: 11/13/01
% Moisture.....: 4.5

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Phenol	ND	2620	1320	ug/kg	50		SW846 8270C
	ND	2620	1370	ug/kg	52	3.7	SW846 8270C
2-Chlorophenol	ND	2620	1400	ug/kg	54		SW846 8270C
	ND	2620	1460	ug/kg	56	4.0	SW846 8270C
1,4-Dichlorobenzene	ND	1750	872	ug/kg	50		SW846 8270C
	ND	1750	909	ug/kg	52	4.2	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	1750	974	ug/kg	56		SW846 8270C
	ND	1750	1010	ug/kg	58	3.6	SW846 8270C
1,2,4-Trichloro-benzene	ND	1750	893	ug/kg	51		SW846 8270C
	ND	1750	919	ug/kg	53	2.8	SW846 8270C
4-Chloro-3-methylphenol	ND	2620	1320	ug/kg	50		SW846 8270C
	ND	2620	1380	ug/kg	53	4.3	SW846 8270C
Acenaphthene	ND	1750	985	ug/kg	56		SW846 8270C
	ND	1750	1030	ug/kg	59	4.6	SW846 8270C
4-Nitrophenol	ND	2620	1270	ug/kg	49		SW846 8270C
	ND	2620	1310	ug/kg	50	3.0	SW846 8270C
2,4-Dinitrotoluene	ND	1750	997	ug/kg	57		SW846 8270C
	ND	1750	1020	ug/kg	59	2.6	SW846 8270C
Pentachlorophenol	ND	2620	961	ug/kg	37		SW846 8270C
	ND	2620	1120	ug/kg	43	15	SW846 8270C
Pyrene	ND	1750	1000	ug/kg	57		SW846 8270C
	ND	1750	1030	ug/kg	59	2.4	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	55	(22 - 119)
	58	(22 - 119)
Phenol-d5	59	(24 - 127)
	61	(24 - 127)
Nitrobenzene-d5	54	(39 - 106)
	56	(39 - 106)
2-Fluorobiphenyl	56	(42 - 106)
	58	(42 - 106)
2,4,6-Tribromophenol	47	(42 - 120)
	50	(42 - 120)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F1K060131 **Work Order #...:** ENEFX1C4-MS **Matrix.....:** SOLID
MS Lot-Sample #: F1K060131-001 ENEFX1C5-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	42	(18 - 97)
	43	(18 - 97)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

GC/MS Semivolatiles

Lot-Sample #...: F1K070156-001 **Work Order #...:** ENGC21A6 **Matrix.....:** SOLID
Date Sampled...: 11/02/01 **Date Received..:** 11/07/01
Prep Date.....: 11/08/01 **Analysis Date..:** 11/13/01
Prep Batch #...: 1312269
Dilution Factor: 1
% Moisture.....: 6.0 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
bis(2-Ethylhexyl) phthalate	ND	350	ug/kg	39
Tributyl phosphate	ND	350		39

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	56	(22 - 119)
Phenol-d5	60	(24 - 127)
Nitrobenzene-d5	52	(39 - 106)
2-Fluorobiphenyl	56	(42 - 106)
2,4,6-Tribromophenol	44	(42 - 120)
Terphenyl-d14	43	(18 - 97)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Samples were re-injected on 1-10-02 to confirm that Tributyl phosphate was not found.

MW
1.14.02

50
Days
1/29/02

BECHTEL HANFORD, INC.

B13D82

GC/MS Semivolatiles

Lot-Sample #: F1K070156-001 **Work Order #:** ENGC21A6 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown aldol condensate		8800	M	3.528	ug/kg

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: W03636 **Work Order #...:** ENJHK1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K080000-263

Prep Date.....: 11/08/01
Analysis Date..: 11/14/01 **Prep Batch #...:** 1312263
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Tributyl phosphate	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	53	(22 - 119)
Phenol-d5	62	(24 - 127)
Nitrobenzene-d5	48	(39 - 106)
2-Fluorobiphenyl	58	(42 - 106)
2,4,6-Tribromophenol	44	(42 - 120)
Terphenyl-d14	52	(18 - 97)

NOTE(S):

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

52
Days
1/29/02

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Semivolatiles

Lot-Sample #: F1K080000-263 B **Work Order #:** ENJHK1AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown Aldol Condensate		9500	M	3.527	ug/kg

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: W03636 **Work Order #...:** ENJLG1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K080000-269

Prep Date.....: 11/08/01
Analysis Date..: 11/13/01 **Prep Batch #...:** 1312269
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Tributyl phosphate	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	53	(22 - 119)
Phenol-d5	62	(24 - 127)
Nitrobenzene-d5	48	(39 - 106)
2-Fluorobiphenyl	58	(42 - 106)
2,4,6-Tribromophenol	44	(42 - 120)
Terphenyl-d14	52	(18 - 97)

NOTE(S):

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

54
Dayes
1/28/02

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Semivolatiles

Lot-Sample #: F1K080000-269 B **Work Order #:** ENJLG1AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown Aldol Condensate		9500	M	3.527	ug/kg

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F1K060131 **Work Order #...:** ENJHK1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K080000-263
Prep Date.....: 11/08/01 **Analysis Date..:** 11/14/01
Prep Batch #...: 1312263
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Phenol	**2500**	**1450**	**ug/kg**	**58**	**SW846 8270C**
2-Chlorophenol	**2500**	**1520**	**ug/kg**	**61**	**SW846 8270C**
1,4-Dichlorobenzene	**1670**	**947**	**ug/kg**	**57**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**1670**	**1060**	**ug/kg**	**64**	**SW846 8270C**
1,2,4-Trichloro-benzene	**1670**	**972**	**ug/kg**	**58**	**SW846 8270C**
4-Chloro-3-methylphenol	**2500**	**1520**	**ug/kg**	**61**	**SW846 8270C**
Acenaphthene	**1670**	**1080**	**ug/kg**	**65**	**SW846 8270C**
4-Nitrophenol	**2500**	**1370**	**ug/kg**	**55**	**SW846 8270C**
2,4-Dinitrotoluene	**1670**	**1090**	**ug/kg**	**65**	**SW846 8270C**
Pentachlorophenol	**2500**	**917**	**ug/kg**	**37**	**SW846 8270C**
Pyrene	**1670**	**1090**	**ug/kg**	**65**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	66	(22 - 119)
Phenol-d5	70	(24 - 127)
Nitrobenzene-d5	66	(39 - 106)
2-Fluorobiphenyl	69	(42 - 106)
2,4,6-Tribromophenol	58	(42 - 120)
Terphenyl-d14	50	(18 - 97)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F1K070156 **Work Order #...:** ENJLG1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K080000-269
Prep Date.....: 11/08/01 **Analysis Date..:** 11/13/01
Prep Batch #...: 1312269
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Phenol	**2500**	**1450**	**ug/kg**	**58**	**SW846 8270C**
2-Chlorophenol	**2500**	**1520**	**ug/kg**	**61**	**SW846 8270C**
1,4-Dichlorobenzene	**1670**	**947**	**ug/kg**	**57**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**1670**	**1060**	**ug/kg**	**64**	**SW846 8270C**
1,2,4-Trichloro-benzene	**1670**	**972**	**ug/kg**	**58**	**SW846 8270C**
4-Chloro-3-methylphenol	**2500**	**1520**	**ug/kg**	**61**	**SW846 8270C**
Acenaphthene	**1670**	**1080**	**ug/kg**	**65**	**SW846 8270C**
4-Nitrophenol	**2500**	**1370**	**ug/kg**	**55**	**SW846 8270C**
2,4-Dinitrotoluene	**1670**	**1090**	**ug/kg**	**65**	**SW846 8270C**
Pentachlorophenol	**2500**	**917**	**ug/kg**	**37**	**SW846 8270C**
Pyrene	**1670**	**1090**	**ug/kg**	**65**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	66	(22 - 119)
Phenol-d5	70	(24 - 127)
Nitrobenzene-d5	66	(39 - 106)
2-Fluorobiphenyl	69	(42 - 106)
2,4,6-Tribromophenol	58	(42 - 120)
Terphenyl-d14	50	(18 - 97)

NOTE(S):

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

Bold print denotes control parameters

GC
Volatiles

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

GC Volatiles

Lot-Sample #...: F1K060131-001 **Work Order #...:** ENEFX1EC **Matrix.....:** SOLID
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01
Prep Date.....: 11/15/01 **Analysis Date..:** 11/15/01
Prep Batch #...: 1317205
Dilution Factor: 1
% Moisture.....: 4.5 **Method.....:** SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Ethanol	ND	5.2	mg/kg	5.2
1-Propanol	ND	5.2	mg/kg	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENEFX1ED-MS **Matrix.....:** SOLID
MS Lot-Sample #: F1K060131-001 ENEFX1EE-MSD
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01
Prep Date.....: 11/15/01 **Analysis Date..:** 11/15/01
Prep Batch #...: 1317205
Dilution Factor: 1 **% Moisture.....:** 4.5

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Ethanol	**ND**	**105**	**101**	**mg/kg**	**97**		**SW846 8015B**
	ND	**105**	**104**	**mg/kg**	**99**	**2.6**	**SW846 8015B**
1-Propanol	**ND**	**105**	**99.0**	**mg/kg**	**94**		**SW846 8015B**
	ND	**105**	**103**	**mg/kg**	**98**	**3.9**	**SW846 8015B**

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

GC Volatiles

Lot-Sample #...: F1K070156-001 **Work Order #...:** ENGC21CA **Matrix.....:** SOLID
Date Sampled...: 11/02/01 **Date Received..:** 11/07/01
Prep Date.....: 11/15/01 **Analysis Date..:** 11/15/01
Prep Batch #...: 1317205
Dilution Factor: 1
% Moisture.....: 6.0 **Method.....:** SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Ethanol	ND	5.3	mg/kg	5.3
1-Propanol	ND	5.3	mg/kg	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENTJX1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K130000-205
Prep Date.....: 11/15/01
Analysis Date..: 11/15/01 **Prep Batch #...:** 1317205
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethanol	ND	5.0	mg/kg	SW846 8015B
1-Propanol	ND	5.0	mg/kg	SW846 8015B

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: F1K060131 **Work Order #...:** ENTJX1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K130000-205
Prep Date.....: 11/15/01 **Analysis Date..:** 11/15/01
Prep Batch #...: 1317205
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Ethanol	**100**	**101**	**mg/kg**	**101**	**SW846 8015B**
1-Propanol	**100**	**100**	**mg/kg**	**100**	**SW846 8015B**

NOTE(S):

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

Bold print denotes control parameters

GC
SemiVolatiles

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

GC Semivolatiles

Lot-Sample #...:	F1K060131-001	**Work Order #...:**	ENEFX1A7	**Matrix.....:**	SOLID
Date Sampled...:	11/01/01	**Date Received..:**	11/05/01		
Prep Date.....:	11/07/01	**Analysis Date..:**	11/12/01		
Prep Batch #...:	1311424				
Dilution Factor:	1				
% Moisture.....:	4.5	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
TPH - Diesel Range - WTPH-D	ND	26	mg/kg	1.4
Kerosene	ND	26	mg/kg	26

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	110	(10 - 150)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

GC Semivolatiles

Lot-Sample #...: F1K070156-001 **Work Order #...:** ENGC21A7 **Matrix.....:** SOLID
Date Sampled...: 11/02/01 **Date Received..:** 11/07/01
Prep Date.....: 11/10/01 **Analysis Date..:** 11/12/01
Prep Batch #...: 1314128
Dilution Factor: 1
% Moisture.....: 6.0 **Method.....:** SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
TPH - Diesel Range - WTPH-D	ND	27	mg/kg	1.4
Kerosene	ND	27	mg/kg	27

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	92	(10 - 150)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

65a

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F1K060131 **Work Order #...:** ENEFX1C6-MS **Matrix.....:** SOLID
MS Lot-Sample #: F1K060131-001 ENEFX1C7-MSD
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01
Prep Date.....: 11/07/01 **Analysis Date..:** 11/21/01
Prep Batch #...: 1311424
Dilution Factor: 1 **% Moisture.....:** 4.5

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TPH - Diesel Range - WTPH	**ND**	**87.3**	**44.5**	**mg/kg**	**51**		**SW846 8015 MOD**
	ND	**87.3**	**42.8**	**mg/kg**	**49**	**3.9**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	102	(10 - 150)
	100	(10 - 150)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F1K070156 **Work Order #...:** ENP101AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K100000-128

Prep Date.....: 11/10/01
Analysis Date..: 11/12/01 **Prep Batch #...:** 1314128
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Kerosene	ND	25	mg/kg	SW846 8015 MOD
TPH - Diesel Range - WTPH	ND	25	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	93	(10 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F1K060131 **Work Order #...:** ENHEK1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K070000-424
Prep Date.....: 11/07/01 **Analysis Date..:** 11/14/01
Prep Batch #...: 1311424
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
TPH - Diesel Range - WTPH	**83.3**	**7.07 a**	**mg/kg**	**8.5**	**SW846 8015 MC**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	11	(10 - 150)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F1K070156 **Work Order #...:** ENP101AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K100000-128
Prep Date.....: 11/10/01 **Analysis Date..:** 11/12/01
Prep Batch #...: 1314128
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
TPH - Diesel Range - WTPH	**250**	**248**	**mg/kg**	**99**	**SW846 8015 MO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	135	(10 - 150)

NOTE(S):

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

Bold print denotes control parameters

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

GC ~~Semivolatiles~~ PCBs Dayes 12/14/01

Lot-Sample #...: F1K060131-001 Work Order #...: ENEFX1EH Matrix.....: SOLID
Date Sampled...: 11/01/01 Date Received..: 11/05/01
Prep Date.....: 11/27/01 Analysis Date..: 11/29/01
Prep Batch #...: 1331333
Dilution Factor: 1
% Moisture.....: 4.5 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	35	ug/kg	2.7
Aroclor 1221	ND	35	ug/kg	2.7
Aroclor 1232	ND	35	ug/kg	2.7
Aroclor 1242	ND	35	ug/kg	2.7
Aroclor 1248	ND	35	ug/kg	2.7
Aroclor 1254	ND	35	ug/kg	6.3
Aroclor 1260	ND	35	ug/kg	6.3

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	127	(10 - 199)
Decachlorobiphenyl	138	(10 - 200)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC ~~Semivolatiles~~ PCBs Dayes 12/14/01

Client Lot #...: F1K060131 **Work Order #...:** ENEFX1EJ-MS **Matrix.....:** SOLID
MS Lot-Sample #: F1K060131-001 ENEFX1EK-MSD
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01
Prep Date.....: 11/27/01 **Analysis Date..:** 11/29/01
Prep Batch #...: 1331333
Dilution Factor: 1 **% Moisture.....:** 4.5

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Aroclor 1016	**ND**	**175**	**188**	**ug/kg**	**108**		**SW846 8082**
	ND	**175**	**181**	**ug/kg**	**104**	**3.6**	**SW846 8082**
Aroclor 1260	**ND**	**175**	**188**	**ug/kg**	**108**		**SW846 8082**
	ND	**175**	**185**	**ug/kg**	**106**	**1.7**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	151	(10 - 199)
	133	(10 - 199)
Decachlorobiphenyl	147	(10 - 200)
	139	(10 - 200)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

GC ~~Semivolatiles~~ PCBs Dayes 12/14/01

Lot-Sample #...: F1K070156-001 Work Order #...: ENGC21CD Matrix.....: SOLID
Date Sampled...: 11/02/01 Date Received..: 11/07/01
Prep Date.....: 11/27/01 Analysis Date..: 11/29/01
Prep Batch #...: 1331333
Dilution Factor: 1
% Moisture.....: 6.0 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	35	ug/kg	2.7
Aroclor 1221	ND	35	ug/kg	2.7
Aroclor 1232	ND	35	ug/kg	2.7
Aroclor 1242	ND	35	ug/kg	2.7
Aroclor 1248	ND	35	ug/kg	2.7
Aroclor 1254	ND	35	ug/kg	6.4
Aroclor 1260	ND	35	ug/kg	6.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	128	(10 - 199)
Decachlorobiphenyl	141	(10 - 200)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC ~~Semivolatiles~~ PCBs Daynes 12/14/01

Client Lot #...: F1K060131 **Work Order #...:** EPJPC1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1K270000-333

Prep Date.....: 11/27/01
Analysis Date..: 11/29/01 **Prep Batch #...:** 1331333
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	88	(10 - 199)
Decachlorobiphenyl	130	(10 - 200)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC ~~Semivolatiles~~ PCBs Dayes 12/14/01

Client Lot #...: F1K060131 **Work Order #...:** EPJPC1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1K270000-333
Prep Date.....: 11/27/01 **Analysis Date..:** 11/29/01
Prep Batch #...: 1331333
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Aroclor 1016	**167**	**173**	**ug/kg**	**104**	**SW846 8082**
Aroclor 1260	**167**	**170**	**ug/kg**	**102**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	132	(62 - 162)
Decachlorobiphenyl	141	(53 - 145)

NOTE(S):

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

Bold print denotes control parameters

METALS

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

TOTAL Metals

Lot-Sample #...: F1K060131-001 Matrix.....: SOLID
Date Sampled...: 11/01/01 Date Received..: 11/05/01
% Moisture.....: 4.5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1310382						
Mercury	0.0087 B	0.035	mg/kg	SW846 7471A	11/06-11/07/01	ENEFX1AC
		Dilution Factor: 1		MDL.....: 0.0019		
Prep Batch #...: 1312163						
Arsenic	1.8	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AE
		Dilution Factor: 1		MDL.....: 0.21		
Barium	78.3 J	20.9	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AF
		Dilution Factor: 1		MDL.....: 0.094		
Beryllium	0.43 B,J	0.52	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AG
		Dilution Factor: 1		MDL.....: 0.010		
Cadmium	0.26 B	0.52	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AH
		Dilution Factor: 1		MDL.....: 0.021		
Chromium	4.7 J	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AJ
		Dilution Factor: 1		MDL.....: 0.094		
Copper	12.9 B	13.1	mg/kg	SW846 6010B	11/08-11/20/01	ENEFX1AK
		Dilution Factor: 5		MDL.....: 0.40		
Lead	1.3	0.31	mg/kg	SW846 6010B	11/08-11/23/01	ENEFX1AL
		Dilution Factor: 1		MDL.....: 0.16		
Nickel	6.8	4.2	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AM
		Dilution Factor: 1		MDL.....: 0.90		
Selenium	ND	0.52	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AN
		Dilution Factor: 1		MDL.....: 0.21		
Silver	ND	5.2	mg/kg	SW846 6010B	11/08-11/20/01	ENEFX1AP
		Dilution Factor: 5		MDL.....: 0.10		
Vanadium	52.1	5.2	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AQ
		Dilution Factor: 1		MDL.....: 0.41		
Zinc	39.0 J	2.1	mg/kg	SW846 6010B	11/08-11/19/01	ENEFX1AR
		Dilution Factor: 1		MDL.....: 0.71		

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BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

TOTAL Metals

Lot-Sample #...: F1K060131-001 **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

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

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1K060131 **Matrix.....:** SOLID
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F1K060131-001 **Prep Batch #...:** 1310382									
Mercury									
	0.0087	0.175	0.195	mg/kg	107		SW846 7471A	11/06-11/07/01	ENEFX1DL
	0.0087	0.175	0.195	mg/kg	107	0.0	SW846 7471A	11/06-11/07/01	ENEFX1DE
				Dilution Factor: 1					
MS Lot-Sample #: F1K060131-001 **Prep Batch #...:** 1312163									
Arsenic									
	1.8	209	210	mg/kg	100		SW846 6010B	11/08-11/19/01	ENEFX1DF
	1.8	209	205	mg/kg	97	2.8	SW846 6010B	11/08-11/19/01	ENEFX1DG
				Dilution Factor: 1					
Barium									
	78.3	209	307	mg/kg	109		SW846 6010B	11/08-11/19/01	ENEFX1DH
	78.3	209	290	mg/kg	101	5.7	SW846 6010B	11/08-11/19/01	ENEFX1DJ
				Dilution Factor: 1					
Beryllium									
	0.43	5.24	5.70	mg/kg	101		SW846 6010B	11/08-11/19/01	ENEFX1DK
	0.43	5.24	5.65	mg/kg	100	0.88	SW846 6010B	11/08-11/19/01	ENEFX1DL
				Dilution Factor: 1					
Cadmium									
	0.26	5.24	5.11	mg/kg	93		SW846 6010B	11/08-11/19/01	ENEFX1DM
	0.26	5.24	5.04	mg/kg	91	1.5	SW846 6010B	11/08-11/19/01	ENEFX1DN
				Dilution Factor: 1					
Chromium									
	4.7	20.9	24.8	mg/kg	96		SW846 6010B	11/08-11/19/01	ENEFX1DP
	4.7	20.9	25.4	mg/kg	98	2.2	SW846 6010B	11/08-11/19/01	ENEFX1DQ
				Dilution Factor: 1					
Copper									
	12.9	26.2	38.5	mg/kg	98		SW846 6010B	11/08-11/20/01	ENEFX1DR
	12.9	26.2	39.1	mg/kg	100	1.5	SW846 6010B	11/08-11/20/01	ENEFX1DT
				Dilution Factor: 5					
Lead									
	1.3	52.4	51.5	mg/kg	96		SW846 6010B	11/08-11/23/01	ENEFX1DU
	1.3	52.4	51.8	mg/kg	96	0.54	SW846 6010B	11/08-11/23/01	ENEFX1DV
				Dilution Factor: 1					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1K060131 **Matrix.....:** SOLID
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Nickel									
	6.8	52.4	56.4	mg/kg	95		SW846 6010B	11/08-11/19/01	ENEFX1DW
	6.8	52.4	55.3	mg/kg	93	1.9	SW846 6010B	11/08-11/19/01	ENEFX1DX
				Dilution Factor: 1					
Selenium									
	ND	209	195	mg/kg	93		SW846 6010B	11/08-11/19/01	ENEFX1D0
	ND	209	190	mg/kg	91	2.3	SW846 6010B	11/08-11/19/01	ENEFX1D1
				Dilution Factor: 1					
Silver									
	ND	5.24	0.0 N	mg/kg	0.0		SW846 6010B	11/08-11/20/01	ENEFX1D2
	ND	5.24	0.0 N	mg/kg	0.0	0.0	SW846 6010B	11/08-11/20/01	ENEFX1D3
				Dilution Factor: 5					
Vanadium									
	52.1	52.4	117	mg/kg	124		SW846 6010B	11/08-11/19/01	ENEFX1D4
	52.1	52.4	113	mg/kg	116	4.1	SW846 6010B	11/08-11/19/01	ENEFX1D5
				Dilution Factor: 1					
Zinc									
	39.0	52.4	97.3	mg/kg	111		SW846 6010B	11/08-11/19/01	ENEFX1D6
	39.0	52.4	97.3	mg/kg	111	0.01	SW846 6010B	11/08-11/19/01	ENEFX1D7
				Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

TOTAL Metals

Lot-Sample #...: F1K070156-001 Matrix.....: SOLID
Date Sampled...: 11/02/01 Date Received..: 11/07/01
% Moisture.....: 6.0

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1311575						
Mercury	0.023 B	0.035	mg/kg	SW846 7471A	11/08-11/09/01	ENGC21AC
		Dilution Factor: 1		MDL.....: 0.0019		
Prep Batch #...: 1312163						
Arsenic	3.3	1.1	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AE
		Dilution Factor: 1		MDL.....: 0.21		
Barium	95.7 J	21.3	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AF
		Dilution Factor: 1		MDL.....: 0.096		
Beryllium	0.47 B,J	0.53	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AG
		Dilution Factor: 1		MDL.....: 0.011		
Cadmium	ND	0.53	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AH
		Dilution Factor: 1		MDL.....: 0.021		
Chromium	4.3 J	1.1	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AJ
		Dilution Factor: 1		MDL.....: 0.096		
Copper	15.6	13.3	mg/kg	SW846 6010B	11/08-11/20/01	ENGC21AK
		Dilution Factor: 5		MDL.....: 0.40		
Lead	1.3	0.32	mg/kg	SW846 6010B	11/08-11/23/01	ENGC21AL
		Dilution Factor: 1		MDL.....: 0.16		
Nickel	7.8	4.3	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AM
		Dilution Factor: 1		MDL.....: 0.92		
Selenium	ND	0.53	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AN
		Dilution Factor: 1		MDL.....: 0.21		
Silver	ND	5.3	mg/kg	SW846 6010B	11/08-11/20/01	ENGC21AP
		Dilution Factor: 5		MDL.....: 0.11		
Vanadium	86.9	5.3	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AQ
		Dilution Factor: 1		MDL.....: 0.41		
Zinc	60.3 J	2.1	mg/kg	SW846 6010B	11/08-11/19/01	ENGC21AR
		Dilution Factor: 1		MDL.....: 0.72		

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BECHTEL HANFORD, INC.

Client Sample ID: B13D82

TOTAL Metals

Lot-Sample #...: F1K070156-001 **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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

TOTAL Metals

Client Lot #...: F1K060131 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F1K060000-382 **Prep Batch #...:** 1310382						
Mercury	ND	0.033	mg/kg	SW846 7471A	11/06-11/07/01	ENE9E1AA
		Dilution Factor: 1				
MB Lot-Sample #: F1K080000-163 **Prep Batch #...:** 1312163						
Arsenic	ND	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AA
		Dilution Factor: 1				
Barium	0.16 B	20.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AC
		Dilution Factor: 1				
Beryllium	0.053 B	0.50	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AD
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AE
		Dilution Factor: 1				
Chromium	0.18 B	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AF
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AG
		Dilution Factor: 1				
Lead	ND	0.30	mg/kg	SW846 6010B	11/08-11/23/01	ENH651AH
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AJ
		Dilution Factor: 1				
Selenium	ND	0.50	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AK
		Dilution Factor: 1				
Silver	0.44 B	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AL
		Dilution Factor: 1				
Vanadium	ND	5.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AM
		Dilution Factor: 1				
Zinc	2.7	2.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AN
		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.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F1K070156 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F1K070000-575 **Prep Batch #...:** 1311575						
Mercury	ND	0.0333	mg/kg	SW846 7471A	11/08-11/09/01	ENH101AA
		Dilution Factor: 1				
MB Lot-Sample #: F1K080000-163 **Prep Batch #...:** 1312163						
Arsenic	ND	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AA
		Dilution Factor: 1				
Barium	0.16 B	20.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AC
		Dilution Factor: 1				
Beryllium	0.053 B	0.50	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AD
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AE
		Dilution Factor: 1				
Chromium	0.18 B	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AF
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AG
		Dilution Factor: 1				
Lead	ND	0.30	mg/kg	SW846 6010B	11/08-11/23/01	ENH651AH
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AJ
		Dilution Factor: 1				
Selenium	ND	0.50	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AK
		Dilution Factor: 1				
Silver	0.44 B	1.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AL
		Dilution Factor: 1				
Vanadium	ND	5.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AM
		Dilution Factor: 1				
Zinc	2.7	2.0	mg/kg	SW846 6010B	11/08-11/19/01	ENH651AN
		Dilution Factor: 1				

NOTE(S):

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1K060131 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F1K080000-163 **Prep Batch #...:** 1312163							
Arsenic	47.5	43.8	mg/kg	92	SW846 6010B	11/08-11/19/01	ENH651AP
			Dilution Factor: 1				
Barium	509	437	mg/kg	86	SW846 6010B	11/08-11/19/01	ENH651AQ
			Dilution Factor: 1				
Beryllium	55.9	52.4	mg/kg	94	SW846 6010B	11/08-11/19/01	ENH651AR
			Dilution Factor: 1				
Cadmium	157	152	mg/kg	97	SW846 6010B	11/08-11/19/01	ENH651AT
			Dilution Factor: 1				
Chromium	51.4	40.9	mg/kg	80	SW846 6010B	11/08-11/19/01	ENH651AU
			Dilution Factor: 1				
Copper	69.5	61.2	mg/kg	88	SW846 6010B	11/08-11/19/01	ENH651AV
			Dilution Factor: 1				
Lead	186	181	mg/kg	98	SW846 6010B	11/08-11/23/01	ENH651AW
			Dilution Factor: 1				
Nickel	112	97.8	mg/kg	87	SW846 6010B	11/08-11/19/01	ENH651AX
			Dilution Factor: 1				
Selenium	109	99.0	mg/kg	91	SW846 6010B	11/08-11/19/01	ENH651A0
			Dilution Factor: 1				
Silver	84.3	85.4	mg/kg	101	SW846 6010B	11/08-11/19/01	ENH651A1
			Dilution Factor: 1				
Vanadium	136	113	mg/kg	83	SW846 6010B	11/08-11/19/01	ENH651A2
			Dilution Factor: 1				
Zinc	289	272	mg/kg	94	SW846 6010B	11/08-11/19/01	ENH651A3
			Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: F1K070156 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Mercury	6.2	5.2	mg/kg	84		SW846 7471A	11/08-11/09/01	1311575
	6.2	4.9	mg/kg	79	6.4	SW846 7471A	11/08-11/09/01	1311575

Dilution Factor: 5

NOTE(S):

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

WET CHEMISTRY

BECHTEL HANFORD, INC.

Client Sample ID: B13CR8

General Chemistry

Lot-Sample #...: F1K060131-001 **Work Order #...:** ENEFX **Matrix.....:** SOLID
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01
% Moisture.....: 4.5

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	ND	5.2	mg/kg	MCAWW 300.0A	11/08/01	1311351
		Dilution Factor: 1		MDL.....: 0.37		
pH (solid)	**9.3**		**No Units**	**SW846 9045A**	**11/06/01**	**1310243**
		Dilution Factor: 1		MDL.....:		
Chloride	**2.0 B**	**2.1**	**mg/kg**	**MCAWW 300.0A**	**11/07/01**	**1311347**
		Dilution Factor: 1		MDL.....: 0.10		
Fluoride	**0.73 B**	**1.0**	**mg/kg**	**MCAWW 300.0A**	**11/07/01**	**1311348**
		Dilution Factor: 1		MDL.....: 0.063		
Nitrate	**11.1**	**4.2**	**mg/kg**	**MCAWW 300.0A**	**11/07/01**	**1311349**
		Dilution Factor: 20		MDL.....: 0.42		
Nitrate/Nitrite as N	**17.1**	**5.2**	**mg/kg**	**MCAWW 353.1**	**11/08/01**	**1312515**
		Dilution Factor: 10		MDL.....: 0.38		
Nitrite	ND	2.1	mg/kg	MCAWW 300.0A	11/07/01	1311350
		Dilution Factor: 10		MDL.....: 0.021		
Nitrogen, as Ammonia	ND	0.52	mg/kg	MCAWW 350.1	11/12/01	1316617
		Dilution Factor: 1		MDL.....: 0.14		
Percent Moisture	**4.5**	**0.10**	**%**	**MCAWW 160.3 MOD**	**11/07/01**	**1312199**
		Dilution Factor: 1		MDL.....:		
Sulfate	**18.5**	**5.2**	**mg/kg**	**MCAWW 300.0A**	**11/07/01**	**1311352**
		Dilution Factor: 1		MDL.....: 0.30		
Total Cyanide	ND	0.52	mg/kg	SW846 9010A	11/12/01	1316585
		Dilution Factor: 1		MDL.....: 0.13		
Total Sulfide	ND	1.0	mg/kg	SW846 9030	11/14/01	1318415
		Dilution Factor: 1		MDL.....: 7.3		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F1K060131 **Work Order #...:** ENEFX-SMP ENEFX-DUP **Matrix.....:** SOLID

Date Sampled...: 11/01/01 **Date Received..:** 11/05/01

% Moisture.....: 4.5

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F1K060131-001	
	4.5	5.2	%	14	(0-0.0)	MCAWW 160.3 MOD	11/07/01	1312199
			Dilution Factor: 1					
Nitrate/Nitrite as N						SD Lot-Sample #:	F1K060131-001	
	17.1	17.4	mg/kg	1.8	(0-35)	MCAWW 353.1	11/08/01	1312515
			Dilution Factor: 10					
Chloride						SD Lot-Sample #:	F1K060131-001	
	2.0 B	2.0 B	mg/kg	1.4	(0-20)	MCAWW 300.0A	11/07/01	1311347
			Dilution Factor: 1					
Fluoride						SD Lot-Sample #:	F1K060131-001	
	0.73 B	0.81 B	mg/kg	11	(0-35)	MCAWW 300.0A	11/07/01	1311348
			Dilution Factor: 1					
Nitrate						SD Lot-Sample #:	F1K060131-001	
	11.1	11.1	mg/kg	0.17	(0-35)	MCAWW 300.0A	11/07/01	1311349
			Dilution Factor: 20					
Nitrite						SD Lot-Sample #:	F1K060131-001	
	ND	ND	mg/kg	0	(0-35)	MCAWW 300.0A	11/07/01	1311350
			Dilution Factor: 10					
Phosphate as P, Ortho						SD Lot-Sample #:	F1K060131-001	
	ND	ND	mg/kg	0	(0-35)	MCAWW 300.0A	11/07/01	1311351
			Dilution Factor: 1					
Sulfate						SD Lot-Sample #:	F1K060131-001	
	18.5	20.0	mg/kg	7.6	(0-35)	MCAWW 300.0A	11/07/01	1311352
			Dilution Factor: 1					
Nitrogen, as Ammonia						SD Lot-Sample #:	F1K060131-001	
	ND	ND	mg/kg	0	(0-30)	MCAWW 350.1	11/12/01	1316617
			Dilution Factor: 1					
Total Cyanide						SD Lot-Sample #:	F1K060131-001	
	ND	ND	mg/kg	0	(0-35)	SW846 9010A	11/12/01	1316585
			Dilution Factor: 1					
Total Sulfide						SD Lot-Sample #:	F1K060131-001	
	ND	ND	mg/kg	0	(0-35)	SW846 9030	11/14/01	1318415
			Dilution Factor: 1					

(Continued on next page)

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F1K060131-000 **Work Order #...:** ENEFX-SMP ENEFX-DUP **Matrix.....:** SOLID

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)						SD Lot-Sample #:	F1K060131-001	
	9.3	9.3	No Units	0.22	(0-20)	SW846 9045A	11/06/01	1310243
			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.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F1K060131 **Matrix.....:** SOLID
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01

Percnt Moisture: 0.0

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
ortho-Phosphate			Work Order #...:		ENEFX1C1	MS Lot-Sample #: F1K060131-001		
	ND	41.9	39.5	mg/kg	94	MCAWW 300.0A	11/07/01	1311351
			Dilution Factor: 1					
Chloride			Work Order #...:		ENEFX1CV	MS Lot-Sample #: F1K060131-001		
	2.0	20.9	22.3	mg/kg	97	MCAWW 300.0A	11/07/01	1311347
			Dilution Factor: 1					
Fluoride			Work Order #...:		ENEFX1CW	MS Lot-Sample #: F1K060131-001		
	0.73	20.9	20.8	mg/kg	96	MCAWW 300.0A	11/07/01	1311348
			Dilution Factor: 1					
Nitrate			Work Order #...:		ENEFX1CX	MS Lot-Sample #: F1K060131-001		
	11.1	105	116	mg/kg	101	MCAWW 300.0A	11/07/01	1311349
			Dilution Factor: 25					
Nitrate/Nitrite as N			Work Order #...:		ENEFX1CU	MS Lot-Sample #: F1K060131-001		
	17.1	52.4	79.6	mg/kg	119	MCAWW 353.1	11/08-11/09/01	1312515
			Dilution Factor: 10					
Nitrite			Work Order #...:		ENEFX1C0	MS Lot-Sample #: F1K060131-001		
	ND	1.05	1.07	mg/kg	103	MCAWW 300.0A	11/07/01	1311350
			Dilution Factor: 10					
Nitrogen, as Ammonia			Work Order #...:		ENEFX1CQ	MS Lot-Sample #: F1K060131-001		
	ND	5.24	6.31	mg/kg	121	MCAWW 350.1	11/12/01	1316617
			Dilution Factor: 1					
Sulfate			Work Order #...:		ENEFX1CP	MS Lot-Sample #: F1K060131-001		
	18.5	41.9	58.9	mg/kg	96	MCAWW 300.0A	11/07/01	1311352
			Dilution Factor: 1					
Total Cyanide			Work Order #...:		ENEFX1CR	MS Lot-Sample #: F1K060131-001		
	ND	5.24	5.03	mg/kg	96	SW846 9010A	11/12/01	1316585
			Dilution Factor: 1					
Total Sulfide			Work Order #...:		ENEFX1CT	MS Lot-Sample #: F1K060131-001		
	ND	10.5	N 6.7	mg/kg	64	SW846 9030	11/14/01	1318415
			Dilution Factor: 1					

(Continued on next page)

MW 12.17.01

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F1K060131 **Matrix.....:** SOLID
Date Sampled...: 11/01/01 **Date Received..:** 11/05/01

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.

BECHTEL HANFORD, INC.

Client Sample ID: B13D82

General Chemistry

Lot-Sample #...: F1K070156-001 Work Order #...: ENGC2 Matrix.....: SOLID
Date Sampled...: 11/02/01 Date Received..: 11/07/01
% Moisture.....: 6.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	2.9 B	5.3	mg/kg	MCAWW 300.0A	11/07/01	1311351
		Dilution Factor: 1		MDL.....: 0.37		
pH (solid)	9.5		No Units	SW846 9045A	11/07/01	1311444
		Dilution Factor: 1		MDL.....:		
Chloride	3.6	2.1	mg/kg	MCAWW 300.0A	11/07/01	1311347
		Dilution Factor: 1		MDL.....: 0.11		
Fluoride	0.76 B	1.1	mg/kg	MCAWW 300.0A	11/07/01	1311348
		Dilution Factor: 1		MDL.....: 0.064		
Nitrate	9.8	4.3	mg/kg	MCAWW 300.0A	11/07/01	1311349
		Dilution Factor: 20		MDL.....: 0.43		
Nitrate/Nitrite as N	9.4	0.53	mg/kg	MCAWW 353.1	11/08/01	1312515
		Dilution Factor: 1		MDL.....: 0.038		
Nitrite	ND	2.1	mg/kg	MCAWW 300.0A	11/07/01	1311350
		Dilution Factor: 10.01		MDL.....: 0.021		
Nitrogen, as Ammonia	ND	0.53	mg/kg	MCAWW 350.1	11/12/01	1316617
		Dilution Factor: 1		MDL.....: 0.14		
Percent Moisture	6.0	0.10	%	MCAWW 160.3 MOD	11/07/01	1312199
		Dilution Factor: 1		MDL.....:		
Sulfate	12.3	5.3	mg/kg	MCAWW 300.0A	11/07/01	1311352
		Dilution Factor: 1		MDL.....: 0.31		
Total Cyanide	ND	0.53	mg/kg	SW846 9010A	11/12/01	1316585
		Dilution Factor: 1		MDL.....: 0.13		
Total Sulfide	ND	1.1	mg/kg	SW846 9030	11/14/01	1318415
		Dilution Factor: 1		MDL.....: 7.4		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B *Estimated result. Result is less than RL.*

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F1K060131 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: ENJPV1AA		MB Lot-Sample #:	F1K070000-347	
	ND	2.0	mg/kg	MCAWW 300.0A	11/07/01	1311347
		Dilution Factor: 1				
Fluoride		Work Order #: ENJP21AA		MB Lot-Sample #:	F1K070000-348	
	ND	1.0	mg/kg	MCAWW 300.0A	11/07/01	1311348
		Dilution Factor: 1				
Nitrate		Work Order #: ENJP51AA		MB Lot-Sample #:	F1K070000-349	
	ND	0.20	mg/kg	MCAWW 300.0A	11/07/01	1311349
		Dilution Factor: 1				
Nitrate/Nitrite as N		Work Order #: ENLJE1AA		MB Lot-Sample #:	F1K080000-515	
	ND	0.50	mg/kg	MCAWW 353.1	11/08/01	1312515
		Dilution Factor: 1				
Nitrite		Work Order #: ENJP81AA		MB Lot-Sample #:	F1K070000-350	
	ND	0.20	mg/kg	MCAWW 300.0A	11/07/01	1311350
		Dilution Factor: 1				
Nitrogen, as Ammonia		Work Order #: ENRXQ1AA		MB Lot-Sample #:	F1K120000-617	
	ND	0.50	mg/kg	MCAWW 350.1	11/12/01	1316617
		Dilution Factor: 1				
Phosphate as P, Ortho		Work Order #: ENJQH1AA		MB Lot-Sample #:	F1K070000-351	
	ND	5.0	mg/kg	MCAWW 300.0A	11/07/01	1311351
		Dilution Factor: 1				
Sulfate		Work Order #: ENJQP1AA		MB Lot-Sample #:	F1K070000-352	
	ND	5.0	mg/kg	MCAWW 300.0A	11/07/01	1311352
		Dilution Factor: 1				
Total Cyanide		Work Order #: ENVNL1AA		MB Lot-Sample #:	F1K120000-585	
	ND	0.50	mg/kg	SW846 9010A	11/12/01	1316585
		Dilution Factor: 1				
Total Sulfide		Work Order #: ENX391AA		MB Lot-Sample #:	F1K140000-415	
	ND	1.0	mg/kg	SW846 9030	11/14/01	1318415
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F1K060131 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			WO#:ENJPV1AC-LCS/ENJPV1AD-LCSD			LCS Lot-Sample#: F1K070000-347		
	10.0	10.9	mg/kg	109		MCAWW 300.0A	11/07/01	1311347
	10.0	10.1	mg/kg	101	6.9	MCAWW 300.0A	11/07/01	1311347
			Dilution Factor: 1					
Fluoride			WO#:ENJP21AC-LCS/ENJP21AD-LCSD			LCS Lot-Sample#: F1K070000-348		
	10.0	8.30	mg/kg	83		MCAWW 300.0A	11/07/01	1311348
	10.0	9.74	mg/kg	97	16	MCAWW 300.0A	11/07/01	1311348
			Dilution Factor: 1					
Nitrate			WO#:ENJP51AC-LCS/ENJP51AD-LCSD			LCS Lot-Sample#: F1K070000-349		
	2.00	1.85	mg/kg	92		MCAWW 300.0A	11/07/01	1311349
	2.00	1.81	mg/kg	91	1.8	MCAWW 300.0A	11/07/01	1311349
			Dilution Factor: 1					
Nitrate/Nitrite as N			WO#:ENLJE1AC-LCS/ENLJE1AD-LCSD			LCS Lot-Sample#: F1K080000-515		
	5.00	4.40	mg/kg	88		MCAWW 353.1	11/08/01	1312515
	5.00	4.45	mg/kg	89	1.1	MCAWW 353.1	11/08/01	1312515
			Dilution Factor: 1					
Nitrite			WO#:ENJP81AC-LCS/ENJP81AD-LCSD			LCS Lot-Sample#: F1K070000-350		
	0.800	0.787	mg/kg	98		MCAWW 300.0A	11/07/01	1311350
	0.800	0.799	mg/kg	100	1.5	MCAWW 300.0A	11/07/01	1311350
			Dilution Factor: 1					
Nitrogen, as Ammonia			WO#:ENRXQ1AC-LCS/ENRXQ1AD-LCSD			LCS Lot-Sample#: F1K120000-617		
	5.00	4.79	mg/kg	96		MCAWW 350.1	11/12/01	1316617
	5.00	4.74	mg/kg	95	1.0	MCAWW 350.1	11/12/01	1316617
			Dilution Factor: 1					
Phosphate as P, Ortho			WO#:ENJQH1AC-LCS/ENJQH1AD-LCSD			LCS Lot-Sample#: F1K070000-351		
	40.0	36.1	mg/kg	90		MCAWW 300.0A	11/07/01	1311351
	40.0	36.9	mg/kg	92	2.0	MCAWW 300.0A	11/07/01	1311351
			Dilution Factor: 1					
Sulfate			WO#:ENJQP1AC-LCS/ENJQP1AD-LCSD			LCS Lot-Sample#: F1K070000-352		
	40.0	36.0	mg/kg	90		MCAWW 300.0A	11/07/01	1311352
	40.0	36.9	mg/kg	92	2.3	MCAWW 300.0A	11/07/01	1311352
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F1K060131 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)			Work Order #: ENEND1AA		LCS Lot-Sample#:	F1K060000-243	
	7.00	7.00	No Units	100	SW846 9045A	11/06/01	1310243
			Dilution Factor: 1				
Total Cyanide			Work Order #: ENVNL1AC		LCS Lot-Sample#:	F1K120000-585	
	5.00	4.72	mg/kg	94	SW846 9010A	11/12/01	1316585
			Dilution Factor: 1				
Total Sulfide			Work Order #: ENX391AC		LCS Lot-Sample#:	F1K140000-415	
	10.0	10.2	mg/kg	102	SW846 9030	11/14/01	1318415
			Dilution Factor: 1				

NOTE(S):

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

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GC/MS SEMIVOLATILES

Data file : \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\KSMP5113.D
Lab Smp Id: ENEFX1A6
Inj Date : 10-JAN-2002 20:18
Operator : LHC Inst ID: MSK.i
Smp Info : ENEFX1A6
Misc Info : F1K060131-001;RI (1312263)
Comment :
Method : \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\8270k.m
Meth Date : 11-Jan-2002 11:31 morganj Quant Type: ISTD
Cal Date : 10-JAN-2002 18:33 Cal File: KCAL5110.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FULLAPPIX.sub
Target Version: 4.10
Processing Host: STLP1095

Concentration Formula: Amt * DF * Uf*Vt/(Vi*Ws*) * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Factor
Vt	1000.000	Volume of final extract
Vi	1.000	Volume Injected
Ws	30.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (uG/KG)	FINAL (ug/Kg)
$ 7 2-Fluorophenol	112	4.723	4.729	(0.751)	563920	50.7258	1691
$ 12 Phenol-d5	99	5.808	5.819	(0.924)	670610	52.1418	1738
* 19 1,4-Dichlorobenzene-d4	152	6.289	6.294	(1.000)	386471	40.0000	
$ 33 Nitrobenzene-d5	82	7.074	7.085	(0.865)	400835	31.0793	1036
* 46 Naphthalene-d8	136	8.174	8.180	(1.000)	1400215	40.0000	
$ 63 2-Fluorobiphenyl	172	10.119	10.130	(0.880)	901533	32.7501	1092
* 76 Acenaphthene-d10	164	11.497	11.508	(1.000)	825721	40.0000	
$ 99 2,4,6-Tribromophenol	330	13.180	13.197	(1.146)	172061	45.1082	1504
* 114 Phenanthrene-d10	188	14.671	14.682	(1.000)	1429061	40.0000	
$ 134 Terphenyl-d14	244	18.207	18.213	(0.887)	924662	25.5864	852.9
* 145 Chrysene-d12	240	20.531	20.547	(1.000)	1403143	40.0000	
* 155 Perylene-d12	264	23.480	23.496	(1.000)	1264198	40.0000	

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INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: MSK.i
Lab File ID: KSMP5113.D
Lab Smp Id: ENEFX1A6
Analysis Type: SV
Quant Type: ISTD
Operator: LHC
Method File: \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\8270k.m
Misc Info: F1K060131-001;RI (1312263)

Calibration Date: 10-JAN-2002
Calibration Time: 13:51

Level: LOW
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
19 1,4-Dichlorobenze	561841	280921	1123682	386471	-31.21
46 Naphthalene-d8	2095463	1047732	4190926	1400215	-33.18
76 Acenaphthene-d10	1223835	611918	2447670	825721	-32.53
114 Phenanthrene-d10	2230637	1115319	4461274	1429061	-35.93
145 Chrysene-d12	2055265	1027633	4110530	1403143	-31.73
155 Perylene-d12	2004728	1002364	4009456	1264198	-36.94

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
19 1,4-Dichlorobenze	6.29	5.79	6.79	6.29	-0.09
46 Naphthalene-d8	8.18	7.68	8.68	8.17	-0.07
76 Acenaphthene-d10	11.51	11.01	12.01	11.50	-0.10
114 Phenanthrene-d10	14.68	14.18	15.18	14.67	-0.08
145 Chrysene-d12	20.55	20.05	21.05	20.53	-0.08
155 Perylene-d12	23.50	23.00	24.00	23.48	-0.07

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

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RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ENEFX1A6
Level: LOW
Data Type: MS DATA
SpikeList File:
Sublist File: FULLAPPIX.sub
Method File: \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\8270k.m
Misc Info: F1K060131-001;RI (1312263)

Client SDG: F1K060131-001
Fraction: SV

Operator: LHC
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 7 2-Fluorophenol	2500	1691	67.63	22-119
$ 12 Phenol-d5	2500	1738	69.52	24-127
$ 33 Nitrobenzene-d5	1667	1036	62.16	39-106
$ 63 2-Fluorobiphenyl	1667	1092	65.50	42-106
$ 99 2,4,6-Tribromophen	2500	1504	60.14	42-120
$ 134 Terphenyl-d14	1667	852.9	51.17	18-97

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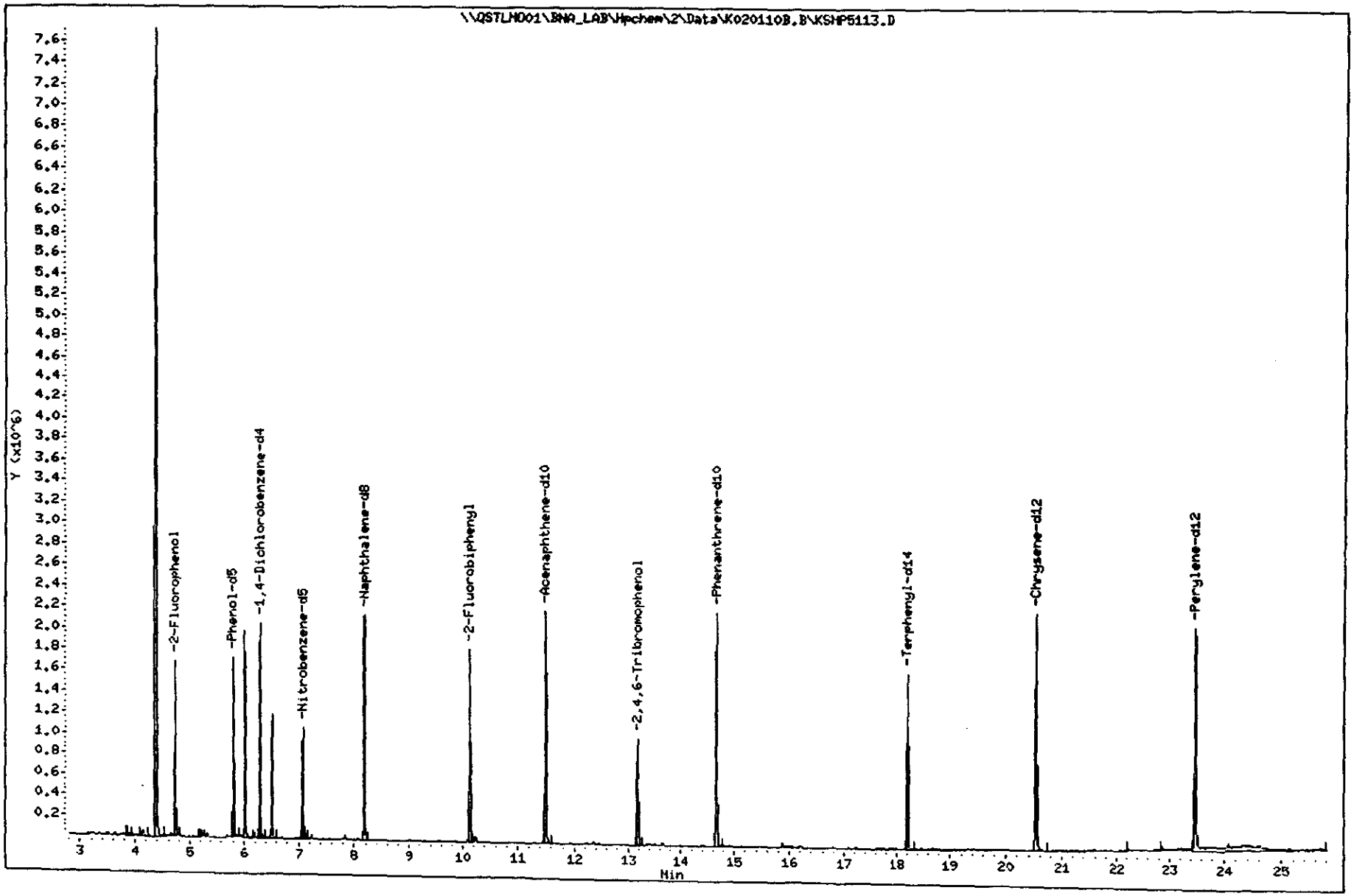
Data File: \\QSTLM001\BNA_LAB\Hpchem\2\Data\K020110B.B\KSHP5113.D
Date : 10-JAN-2002 20:18
Client ID:
Sample Info: ENEFX1A6
Volume Injected (uL): 1.0
Column phase:

Instrument: HSK.i

Operator: LHC
Column diameter: 2.00

99 Dayes 1-14-02



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GC/MS SEMIVOLATILES

Data file : \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\KSMP5114.D
Lab Smp Id: ENGC21A6
Inj Date : 10-JAN-2002 20:53
Operator : LHC Inst ID: MSK.i
Smp Info : ENGC21A6
Misc Info : F1K070156-001;RI (1312269)
Comment :
Method : \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\8270k.m
Meth Date : 11-Jan-2002 11:31 morganj Quant Type: ISTD
Cal Date : 10-JAN-2002 18:33 Cal File: KCAL5110.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FULLAPPIX.sub
Target Version: 4.10
Processing Host: STLP1095

Concentration Formula: Amt * DF * Uf*Vt/(Vi*Ws*) * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Factor
Vt	1000.000	Volume of final extract
Vi	1.000	Volume Injected
Ws	30.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (uG/KG)	CONCENTRATIONS FINAL (ug/Kg)
$ 7 2-Fluorophenol	112	4.726	4.729	(0.752)	535668	48.6373	1621
$ 12 Phenol-d5	99	5.811	5.819	(0.924)	637403	50.0256	1668
* 19 1,4-Dichlorobenzene-d4	152	6.286	6.294	(1.000)	382873	40.0000	
$ 33 Nitrobenzene-d5	82	7.077	7.085	(0.866)	375031	29.5300	984.3
* 46 Naphthalene-d8	136	8.172	8.180	(1.000)	1378806	40.0000	
$ 63 2-Fluorobiphenyl	172	10.122	10.130	(0.880)	857343	31.1590	1039
* 76 Acenaphthene-d10	164	11.500	11.508	(1.000)	825344	40.0000	
$ 99 2,4,6-Tribromophenol	330	13.178	13.197	(1.146)	158586	41.5946	1386
* 114 Phenanthrene-d10	188	14.668	14.682	(1.000)	1431405	40.0000	
$ 134 Terphenyl-d14	244	18.205	18.213	(0.887)	914750	25.4574	848.6
* 145 Chrysene-d12	240	20.528	20.547	(1.000)	1395134	40.0000	
* 155 Perylene-d12	264	23.483	23.496	(1.000)	1267515	40.0000	

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INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: MSK.i
Lab File ID: KSMP5114.D
Lab Smp Id: ENGC21A6
Analysis Type: SV
Quant Type: ISTD
Operator: LHC
Method File: \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\8270k.m
Misc Info: F1K070156-001;RI (1312269)

Calibration Date: 10-JAN-2002
Calibration Time: 13:51
Level: LOW
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
19 1,4-Dichlorobenze	561841	280921	1123682	382873	-31.85
46 Naphthalene-d8	2095463	1047732	4190926	1378806	-34.20
76 Acenaphthene-d10	1223835	611918	2447670	825344	-32.56
114 Phenanthrene-d10	2230637	1115319	4461274	1431405	-35.83
145 Chrysene-d12	2055265	1027633	4110530	1395134	-32.12
155 Perylene-d12	2004728	1002364	4009456	1267515	-36.77

✓

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
19 1,4-Dichlorobenze	6.29	5.79	6.79	6.29	-0.13
46 Naphthalene-d8	8.18	7.68	8.68	8.17	-0.10
76 Acenaphthene-d10	11.51	11.01	12.01	11.50	-0.07
114 Phenanthrene-d10	14.68	14.18	15.18	14.67	-0.09
145 Chrysene-d12	20.55	20.05	21.05	20.53	-0.09
155 Perylene-d12	23.50	23.00	24.00	23.48	-0.06

✓

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

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1/14/02

STL St. Louis

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ENGC21A6
Level: LOW
Data Type: MS DATA
SpikeList File:
Sublist File: FULLAPPIX.sub
Method File: \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\8270k.m
Misc Info: F1K070156-001;RI (1312269)

Client SDG: F1K070156
Fraction: SV

Operator: LHC
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 7 2-Fluorophenol	2500	1621	64.85	22-119
$ 12 Phenol-d5	2500	1668	66.70	24-127
$ 33 Nitrobenzene-d5	1667	984.3	59.06	39-106
$ 63 2-Fluorobiphenyl	1667	1039	62.32	42-106
$ 99 2,4,6-Tribromophen	2500	1386	55.46	42-120
$ 134 Terphenyl-d14	1667	848.6	50.91	18-97

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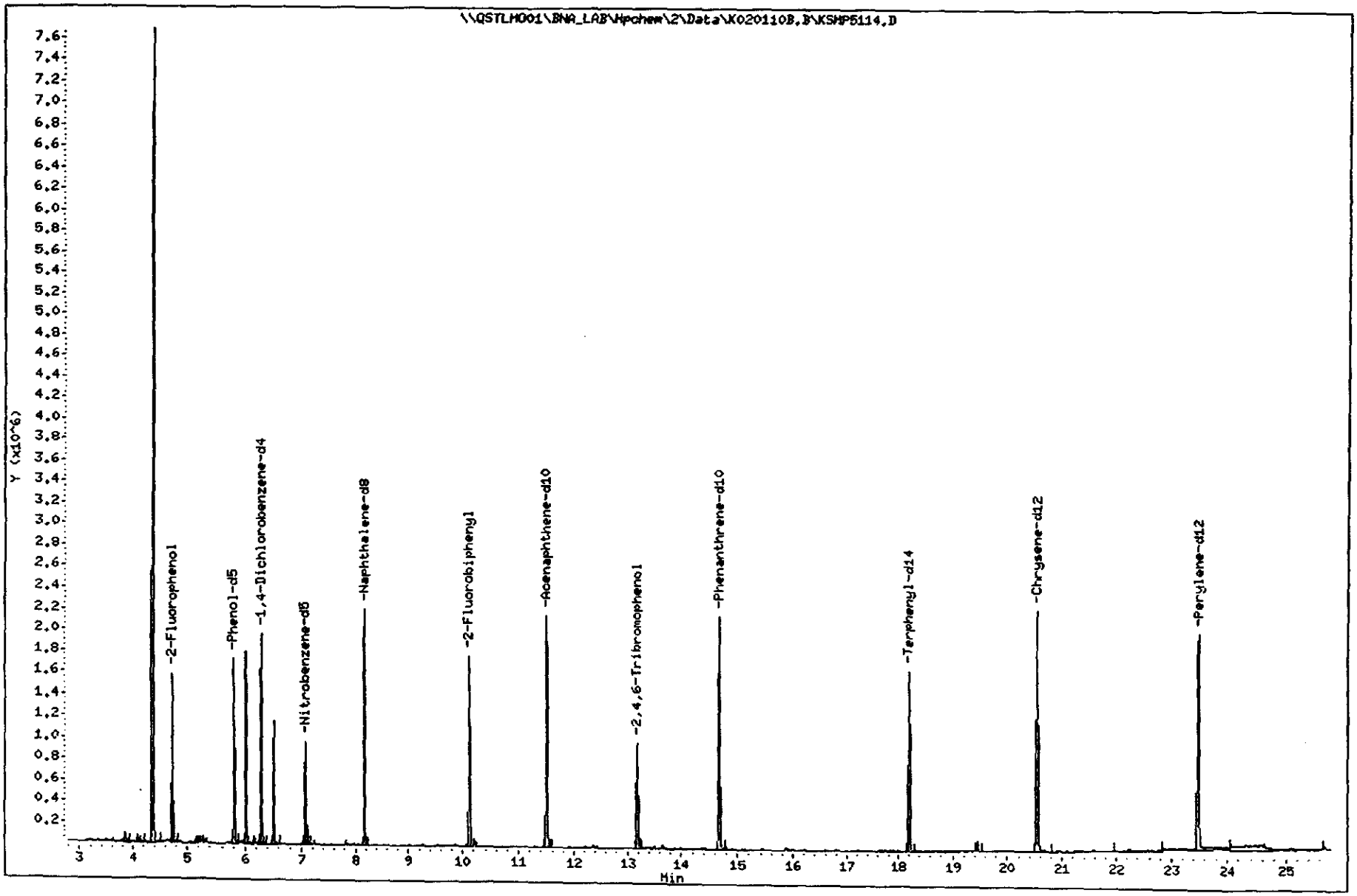
1/17/02

Data File: \\QSTLMO01\BNA_LAB\Hpchem\2\Data\K020110B.B\KSMP5114.D
Date : 10-JAN-2002 20:53
Client ID:
Sample Info: ENGC21A6
Volume Injected (uL): 1.0
Column phase:

Instrument: HSK.i

Operator: LHC
Column diameter: 2.00

103
Dayes
11-1-02