0061941

Analytical Data Package Prepared For

Fluor Hanford Inc.

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains 56 *Pages*

Report No.: 24696

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W04230	F03-025	B17RV0	J3L170303-1	F6W841AA	9F6W8410	3353364
		B17RV0	J3L170303-1	F6W841AF	9F6W8410	3353365
		B17RV0	J3L170303-1	F6W841AE	9F6W8410	3353367
		B17RV0	J3L170303-1	F6W841AC	9F6W8410	3353368
		B17RV0	J3L170303-1	F6W841AH	9F6W8410	3353370
		B17RV0	J3L170303-1	F6W841AD	9F6W8410	3353373
		B17RV0	J3L170303-1	F6W841AG	9F6W8410	3353374

RECEIVED
JUN 2 1 2004
EDMC

JAN 2004
RECEIVED

SEVERN TRENT STL

STL Richland
2800 George Washington Way
Richland, WA 99352

Tel: 509 375 3131 Fax: 509 375 5590
www.stl-inc.com

Certificate of Analysis

Fluor Hanford
P.O. Box 1000, T6-03
Richland, WA 99352

January 22, 2004

Attention: Steve Trent

JAN 2004
RECEIVED

SAF Number	:	F03-025
Date SDG Closed	:	December 17, 2003
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W04230
Data Deliverable	:	30-Day / Summary

AMENDED CASE NARRATIVE

I. Introduction

On December 17, 2003, one water sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Fluor Hanford (FH) specific ID:

FH ID#	STLR ID#	MATRIX	DATE OF RECEIPT
B17RV0	F6W84	SOIL	12/17/03

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in. The turn around time was provided and began on December 18, 2004 by Steve Trent via telephone.

III. 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 analysis was:

Alpha Spectroscopy
Thorium-232 by method RICHRC5084

Gamma Spectroscopy
Gamma (Ra-226, -228) by method RICHRC5017

Gas Proportional Counting
Total Strontium by method RICHRC5006

Liquid Scintillation Counting
Carbon-14 by method RICHRC5022
Nickel-63 by method RICHRC5069
Technecium-99 by method RICHRC5078
Tritium by method RICHRC5037

IV. Quality Control

The analytical results for each analysis performed under SDG W04230 includes 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.

V. Comments

Alpha Spectroscopy
Thorium-232 by method RICHRC5084
The LCS failed analysis however this batch was analyzed with at the same time as another batch (3353385) and its LCS is acceptable. All sample beta counts are zero and the data is accepted. Except as noted, the LCS, batch blank, sample results and Sample duplicate (B17RV0) are within contractual requirements.

Gamma Spectroscopy
Gamma (Ra-226, -228) by method RICHRC5017
There was insufficient sample received to analyze a separate duplicate sample fraction, therefore the precision determination was performed by recounting the sample aliquot on a separate detector. Except as noted, the LCS, batch blank, sample results and Sample duplicate (B17RV0) are within contractual requirements.

Gas Proportional Counting
Total Strontium by method RICHRC5006
The LCS, batch blank, sample results and Sample duplicate (B17RV0) are within contractual requirements.

Liquid Scintillation Counting

Carbon-14 by method RICHRC5022

The LCS, batch blank, sample results and Sample duplicate (B17RV0) are within contractual requirements.

Nickel-63 by method RICHRC5069

The LCS, batch blank, sample results and Sample duplicate (B17RV0) are within contractual requirements.

Technecium-99 by method RICHRC5078

The LCS, batch blank, sample results and Sample duplicate (B17RV0) are within contractual requirements.

Tritium by method RICHRC5037

The LCS, batch blank, sample results and Sample duplicate (B17RV0) 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:

Beverly I. Giroir
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 Method, Batch No., Client Sample ID.

Date: 23-Jan-04

Report No. : 24696

SDG No: W04230

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3353373 THISO_IE_PRECIP_AEA									
B17RV0									
	F6W841AD	TH-228	1.04E+00 +- 2.72E-01		pCi/g	103%	6.49E-02	1.00E+00	
		TH-230	1.05E+00 +- 2.69E-01		pCi/g	103%	2.82E-02	1.00E+00	
		TH-232	1.22E+00 +- 2.98E-01		pCi/g	103%	2.82E-02	1.00E+00	
B17RV0 DUP									
	F6W841AQ	TH-228	1.45E+00 +- 3.74E-01		pCi/g	84%	9.72E-02	1.00E+00	
		TH-230	8.89E-01 +- 2.64E-01		pCi/g	84%	3.76E-02	1.00E+00	
		TH-232	1.19E+00 +- 3.22E-01		pCi/g	84%	3.76E-02	1.00E+00	
3353374 GAMMA_GS									
B17RV0									
	F6W841AG	RA-226	4.05E-01 +- 8.41E-02		pCi/g		4.44E-02		
		RA-228	5.65E-01 +- 1.44E-01		pCi/g		8.75E-02		
B17RV0 DUP									
	F6W841AR	RA-226	3.78E-01 +- 8.64E-02		pCi/g		4.60E-02		
		RA-228	6.10E-01 +- 1.51E-01		pCi/g		9.44E-02		
3353364 SRTOT_SEP_PRECIP_GPC									
B17RV0									
	F6W841AA	STRONTIUM	3.77E-01 +- 2.38E-01	U	pCi/g	22%	4.12E-01		
B17RV0 DUP									
	F6W841AJ	STRONTIUM	2.70E-01 +- 1.81E-01	U	pCi/g	30%	3.25E-01		
3353365 906.0_H3_LSC									
B17RV0									
	F6W841AF	H-3	3.26E+00 +- 1.55E-01		pCi/g	100%	3.29E-02	4.00E+02	
B17RV0 DUP									
	F6W841AK	H-3	3.31E+00 +- 1.58E-01		pCi/g	100%	3.48E-02	4.00E+02	
3353367 TC99_ETVDSK_LSC									
B17RV0									
	F6W841AE	TC-99	6.30E-02 +- 3.74E-01	U	pCi/g	100%	6.36E-01	1.50E+01	
B17RV0 DUP									
	F6W841AM	TC-99	1.91E-01 +- 3.81E-01	U	pCi/g	100%	6.35E-01	1.50E+01	
3353368 NI63LSC									
B17RV0									
	F6W841AC	NI-63	2.75E+00 +- 4.74E+00	U	pCi/g	81%	6.67E+00	3.00E+01	
B17RV0 DUP									
	F6W841AN	NI-63	1.47E+00 +- 4.64E+00	U	pCi/g	81%	6.68E+00	3.00E+01	
3353370 C14_LSC									
B17RV0									
	F6W841AH	C-14	-8.23E-02 +- 3.84E-01	U	pCi/g	100%	8.04E-01	5.00E+01	
B17RV0 DUP									

RPD - Relative Percent Difference.

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 Method, Batch No., Client Sample ID.

Date: 23-Jan-04

Report No. : 24696

SDG No: W04230

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3353370	C14_LSC								
B17RV0 DUP									
F6W841AP	C-14		9.12E-02 +- 3.91E-01	U	pCi/g	100%	8.05E-01	5.00E+01	

No. of Results: 20

STL Richland

rptSTLRchSaSummary2 V4.05 A97

RPD - Relative Percent Difference.

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

Date: 23-Jan-04

Ordered by Method, Batch No, QC Type,.

Report No. : 24696 **SDG No.:** W04230

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
THISO_IE_PRECIP_AEA								
3353373 BLANK QC								
F64F61AA	TH-228	9.92E-03 +- 1.58E-02	U	pCi/g	77%			2.64E-02
	TH-230	0.00E+00 +- 1.28E-02	U	pCi/g	77%			1.42E-02
	TH-232	0.00E+00 +- 1.28E-02	U	pCi/g	77%			1.42E-02
3353373 LCS								
F64F61AC	TH-228	-4.35E-01 +- 6.67E-01	U	pCi/g	0%			6.14E+00
	TH-230	0.00E+00 +- 2.53E+00	U	pCi/g	0%			2.80E+00
	TH-232	0.00E+00 +- 2.53E+00	U	pCi/g	0%			2.80E+00
GAMMA_GS								
3353374 BLANK QC								
F64F71AA	RA-226	-1.42E-02 +- 6.23E-02	U	pCi/g				7.98E-02
	RA-228	1.12E-02 +- 1.26E-01	U	pCi/g				1.33E-01
3353374 LCS								
F64F71AC	CS-137	7.99E-01 +- 1.24E-01		pCi/g		85%	-0.1	6.96E-02
	RA-226	1.56E+00 +- 2.84E-01		pCi/g		73%	-0.3	1.19E-01
SRTOT_SEP_PRECIP_GPC								
3353364 BLANK QC								
F64FR1AA	STRONTIUM	9.06E-02 +- 8.17E-02	U	pCi/g	62%			1.60E-01
3353364 LCS								
F64FR1AC	STRONTIUM	1.02E+00 +- 3.10E-01		pCi/g	61%	89%	-0.1	1.62E-01
906.0_H3_LSC								
3353365 BLANK QC								
F64FV1AA	H-3	-6.05E-02 +- 1.20E-01	U	pCi/g	100%			2.72E-01
3353365 LCS								
F64FV1AC	H-3	1.38E+00 +- 1.93E-01		pCi/g	100%	101%	0.0	2.75E-01
TC99_ETVDSK_LSC								
3353367 MATRIX SPIKE								
F6W841AL	TC-99	2.08E+02 +- 1.28E+01		pCi/g	100%	91%	-0.1	6.34E-01
3353367 BLANK QC								
F64F01AA	TC-99	2.38E-02 +- 3.72E-01	U	pCi/g	100%			6.35E-01
3353367 LCS								
F64F01AC	TC-99	2.06E+02 +- 1.27E+01		pCi/g	100%	91%	-0.1	6.36E-01
NI63LSC								
3353368 BLANK QC								
F64F21AA	NI-63	1.18E+00 +- 4.52E+00	U	pCi/g	83%			6.47E+00
3353368 LCS								
F64F21AC	NI-63	4.65E+02 +- 7.35E+01		pCi/g	84%	92%	-0.1	6.25E+00
C14_LSC								
3353370 BLANK QC								
F64F51AA	C-14	-1.03E-01 +- 1.52E-01	U	pCi/g	100%			3.24E-01
3353370 LCS								
F64F51AC	C-14	6.94E+00 +- 3.91E-01		pCi/g	100%	96%	0.0	3.24E-01

STL Richland
rptSTLRchQcSummary V4.05 A97

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 Method, Batch No, QC Type,.

Date: 23-Jan-04

Report No. : 24696

SDG No.: W04230

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA

No. of Results: 21

FORM I

SAMPLE RESULTS

Date: 23-Jan-04

Lab Name:	STL Richland	**SDG:**	W04230	**Collection Date:**	12/7/2003 10:30:00 AM
Lot-Sample No.:	J3L170303-1	**Report No. :**	24696	**Received Date:**	12/17/2003 11:50:00 AM
Client Sample ID:	B17RV0	**COC No. :**	F03-025-018	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3353364	SRTOT_SEP_PRECIP_GPC			**Work Order:**	F6W841AA		**Report DB ID:**	9F6W8410				
STRONTIUM	3.77E-01	U	2.17E-01	2.38E-01	4.12E-01	pCi/g	22%	*0.92*	1/16/04 06:36 a		6.0	GPC27A
						1.91E-01		*(3.2)*			G	
Batch: 3353365	906.0_H3_LSC			**Work Order:**	F6W841AF		**Report DB ID:**	9F6W8410				
H-3	3.26E+00		7.44E-02	1.55E-01	3.29E-02	pCi/g	100%	*(99.1)*	12/23/03 10:52 p		98.9	LSC4
						1.53E-02	4.00E+02	*(42.1)*			G	
Batch: 3353367	TC99_ETVDSK_LSC			**Work Order:**	F6W841AE		**Report DB ID:**	9F6W8410				
TC-99	6.30E-02	U	2.63E-01	3.74E-01	6.36E-01	pCi/g	100%	*0.1*	1/16/04 02:06 a		2.0	LSC4
						3.05E-01	1.50E+01	*0.34*			G	
Batch: 3353368	NI63LSC			**Work Order:**	F6W841AC		**Report DB ID:**	9F6W8410				
NI-63	2.75E+00	U	2.79E+00	4.74E+00	6.67E+00	pCi/g	81%	*0.41*	1/18/04 01:47 p		0.2501	LSC3
						3.23E+00	3.00E+01	*(1.2)*			G	
Batch: 3353370	C14_LSC			**Work Order:**	F6W841AH		**Report DB ID:**	9F6W8410				
C-14	-8.23E-02	U	3.29E-01	3.84E-01	8.04E-01	pCi/g	100%	*-0.1*	12/24/03 11:09 p		2.011	LSC3
						3.86E-01	5.00E+01	*-0.43*			G	
Batch: 3353373	THISO_IE_PRECIP_AEA			**Work Order:**	F6W841AD		**Report DB ID:**	9F6W8410				
TH-228	1.04E+00		2.14E-01	2.72E-01	6.49E-02	pCi/g	103%	*(16.1)*	1/20/04 05:56 p		1.0	ALP119
						1.76E-02	1.00E+00	*(7.7)*			G	
TH-230	1.05E+00		2.09E-01	2.69E-01	2.82E-02	pCi/g	103%	*(37.3)*	1/20/04 05:56 p		1.0	ALP119
							1.00E+00	*(7.8)*			G	

STL Richland
rptSTLRchSample
V4.05 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: 23-Jan-04

Lab Name:	STL Richland	**SDG:**	W04230	**Collection Date:**	12/7/2003 10:30:00 AM
Lot-Sample No.:	J3L170303-1	**Report No. :**	24696	**Received Date:**	12/17/2003 11:50:00 AM
Client Sample ID:	B17RV0	**COC No. :**	F03-025-018	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
TH-232	1.22E+00		2.25E-01	2.98E-01	2.82E-02	pCi/g	103%	*(43.2)*	1/20/04 05:56 p		1.0	ALP119
							1.00E+00	*(8.2)*			G	
Batch: 3353374	GAMMA_GS			**Work Order:**	F6W841AG		**Report DB ID:**	9F6W8410				
RA-226	4.05E-01		8.41E-02	8.41E-02	4.44E-02	pCi/g		*(9.1)*	1/13/04 01:11 p		77.6	GER6$1
								(9.6)			g	
RA-228	5.65E-01		1.44E-01	1.44E-01	8.75E-02	pCi/g		*(6.5)*	1/13/04 01:11 p		77.6	GER6$1
								(7.8)			g	

No. of Results: 10 **Comments:**

12

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: 23-Jan-04

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W04230	**Collection Date:**	12/7/2003 10:30:00 AM
Lot-Sample No.:	J3L170303-1	**Report No. :**	24696	**Received Date:**	12/17/2003 11:50:00 AM
Client Sample ID:	B17RV0 DUP	**COC No. :**	F03-025-018	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3353364	SRTOT_SEP_PRECIP_GPC			**Work Order:** F6W841AJ		**Report DB ID:** F6W841JR			**Orig Sa DB ID:** 9F6W8410			
STRONTIUM	2.70E-01	U	1.67E-01	1.81E-01	3.25E-01	pCi/g	30%	0.83	1/16/04 06:36 a		5.99	GPC27B
	3.77E-01	U	**RPD**	**33.0**				(3.)			G	
Batch: 3353365	906.0_H3_LSC			**Work Order:** F6W841AK		**Report DB ID:** F6W841KR			**Orig Sa DB ID:** 9F6W8410			
H-3	3.31E+00		7.72E-02	1.58E-01	3.48E-02	pCi/g	100%	(94.9)	12/23/03 11:35 p		97.5	LSC4
	3.26E+00		**RPD**	**1.5**		4.00E+02		(41.9)			G	
Batch: 3353367	TC99_ETVDSK_LSC			**Work Order:** F6W841AM		**Report DB ID:** F6W841MR			**Orig Sa DB ID:** 9F6W8410			
TC-99	1.91E-01	U	2.68E-01	3.81E-01	6.35E-01	pCi/g	100%	0.3	1/16/04 04:11 a		2.0	LSC4
	6.30E-02	U	**RPD**	**100.8**		1.50E+01		(1.)			G	
Batch: 3353368	NI63LSC			**Work Order:** F6W841AN		**Report DB ID:** F6W841NR			**Orig Sa DB ID:** 9F6W8410			
NI-63	1.47E+00	U	2.76E+00	4.64E+00	6.68E+00	pCi/g	81%	0.22	1/18/04 03:29 p		0.2497	LSC3
	2.75E+00	U	**RPD**	**60.6**		3.00E+01		0.63			G	
Batch: 3353370	C14_LSC			**Work Order:** F6W841AP		**Report DB ID:** F6W841PR			**Orig Sa DB ID:** 9F6W8410			
C-14	9.12E-02	U	3.35E-01	3.91E-01	8.05E-01	pCi/g	100%	0.11	12/24/03 11:51 p		2.007	LSC3
	-8.23E-02	U	**RPD**	**3899.6**		5.00E+01		0.47			G	
Batch: 3353373	THISO_IE_PRECIP_AEA			**Work Order:** F6W841AQ		**Report DB ID:** F6W841QR			**Orig Sa DB ID:** 9F6W8410			
TH-228	1.45E+00		2.92E-01	3.74E-01	9.72E-02	pCi/g	84%	(14.9)	1/20/04 05:56 p		1.0	ALP120
	1.04E+00		**RPD**	**32.5**		1.00E+00		(7.7)			G	

STL Richland
rptSTLRchDupV4.05 A97

RPD - Relative Percent Difference.
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: 23-Jan-04

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W04230	**Collection Date:**	12/7/2003 10:30:00 AM
Lot-Sample No.:	J3L170303-1	**Report No. :**	24696	**Received Date:**	12/17/2003 11:50:00 AM
Client Sample ID:	B17RV0 DUP	**COC No. :**	F03-025-018	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
TH-230	8.89E-01		2.22E-01	2.64E-01	3.76E-02	pCi/g	84%	(23.6)	1/20/04 05:56 p		1.0	ALP120
	1.05E+00		RPD	16.7		1.00E+00		(6.7)			G	
TH-232	1.19E+00		2.58E-01	3.22E-01	3.76E-02	pCi/g	84%	(31.7)	1/20/04 05:56 p		1.0	ALP120
	1.22E+00		RPD	1.9		1.00E+00		(7.4)			G	

Alpha Spec Result Sum = 2.1E+00

Batch: 3353374 GAMMA_GS **Work Order:** F6W841AR **Report DB ID:** F6W841RR **Orig Sa DB ID:** 9F6W8410

RA-226	3.78E-01		8.64E-02	8.64E-02	4.60E-02	pCi/g		(8.2)	1/14/04 12:16 p	77.6	GER4$1
	4.05E-01		RPD	7.0				(8.7)		g	
RA-228	6.10E-01		1.51E-01	1.51E-01	9.44E-02	pCi/g		(6.5)	1/14/04 12:16 p	77.6	GER4$1
	5.65E-01		RPD	7.7				(8.1)		g	

Alpha Spec Result Sum = 2.1E+00

No. of Results: 10 **Comments:**

RPD - Relative Percent Difference.
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: 23-Jan-04

Lab Name: STL Richland

Matrix: SOIL

SDG: W04230

Report No. : 24696

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3353370	C14_LSC			**Work Order:**	F64F51AA		**Report DB ID:**	F64F51AB				
C-14	-1.03E-01	U	1.30E-01	1.52E-01	3.24E-01	pCi/g	100%	-0.32	12/24/03 09:45 p		5.0	LSC3
					1.55E-01	5.00E+01		-(1.4)			G	
Batch: 3353373	THISO_IE_PRECIP_AEA			**Work Order:**	F64F61AA		**Report DB ID:**	F64F61AB				
TH-228	9.92E-03	U	1.57E-02	1.58E-02	2.64E-02	pCi/g	77%	0.38	1/20/04 05:53 p		2.0	ALP171
					5.73E-03	1.00E+00		(1.3)			G	
TH-230	0.00E+00	U	0.00E+00	1.28E-02	1.42E-02	pCi/g	77%	0.	1/20/04 05:53 p		2.0	ALP171
						1.00E+00		0.			G	
TH-232	0.00E+00	U	0.00E+00	1.28E-02	1.42E-02	pCi/g	77%	0.	1/20/04 05:53 p		2.0	ALP171
						1.00E+00		0.			G	
Batch: 3353368	NI63LSC			**Work Order:**	F64F21AA		**Report DB ID:**	F64F21AB				
NI-63	1.18E+00	U	2.68E+00	4.52E+00	6.47E+00	pCi/g	83%	0.18	1/18/04 05:12 p		0.25	LSC3
					3.13E+00	3.00E+01		0.52			G	
Batch: 3353367	TC99_ETVDSK_LSC			**Work Order:**	F64F01AA		**Report DB ID:**	F64F01AB				
TC-99	2.38E-02	U	2.62E-01	3.72E-01	6.35E-01	pCi/g	100%	0.04	1/16/04 05:13 a		2.0	LSC4
					3.05E-01	2.00E+01		0.13			G	
Batch: 3353365	906.0_H3_LSC			**Work Order:**	F64FV1AA		**Report DB ID:**	F64FV1AB				
H-3	-6.05E-02	U	1.05E-01	1.20E-01	2.72E-01	pCi/g	100%	-0.22	12/23/03 09:27 p		10.0	LSC4
					1.27E-01	4.00E+02		-(1.)			G	
Batch: 3353374	GAMMA_GS			**Work Order:**	F64F71AA		**Report DB ID:**	F64F71AX				
RA-226	-1.42E-02	U	6.23E-02	6.23E-02	7.98E-02	pCi/g		-0.18	1/13/04 01:12 p		52.0	GER7$1
								-0.46			g	

STL Richland
rptSTLRchBlank
V4.05 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: 23-Jan-04

Lab Name: STL Richland

Matrix: SOIL

SDG: W04230

Report No. : 24696

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
RA-228	1.12E-02	U	1.26E-01	1.26E-01	1.33E-01	pCi/g		0.08	1/13/04 01:12 p		52.0	GER7$1
								0.18			g	
Batch: 3353364	SRTOT_SEP_PRECIP_GPC			**Work Order:** F64FR1AA			**Report DB ID:** F64FR1AB					
STRONTIUM	9.06E-02	U	7.81E-02	8.17E-02	1.60E-01	pCi/g	62%	0.57	1/16/04 06:36 a		6.0	GPC27C
					7.41E-02			(2.2)			G	

No. of Results: 10 **Comments:**

10

STL Richland
rptSTLRchBlank
V4.05 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

LCS RESULTS

Date: 23-Jan-04

Lab Name: STL Richland

Matrix: SOIL

SDG: W04230

Report No. : 24696

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3353370	C14_LSC			**Work Order:**	F64F51AC		**Report DB ID:**	F64F51CS					
C-14	6.94E+00		2.93E-01	3.91E-01	3.24E-01	pCi/g	100%	7.21E+00	2.34E-01	96%	12/24/03 10:27 p	5.0	LSC3
							Rec Limits:	70	130	0.0		G	
Batch: 3353373	THISO_IE_PRECIP_AEA			**Work Order:**	F64F61AC		**Report DB ID:**	F64F61CS					
TH-228	-4.35E-01	U	6.15E-01	6.67E-01	6.14E+00	pCi/g	0%				1/20/04 05:53 p	2.0	ALP172
							Rec Limits:	20	105			G	
TH-230	0.00E+00	U	0.00E+00	2.53E+00	2.80E+00	pCi/g	0%				1/20/04 05:53 p	2.0	ALP172
							Rec Limits:	70	130			G	
TH-232	0.00E+00	U	0.00E+00	2.53E+00	2.80E+00	pCi/g	0%				1/20/04 05:53 p	2.0	ALP172
							Rec Limits:	20	105			G	
Batch: 3353368	NI63LSC			**Work Order:**	F64F21AC		**Report DB ID:**	F64F21CS					
NI-63	4.65E+02		8.59E+00	7.35E+01	6.25E+00	pCi/g	84%	5.04E+02	1.69E+01	92%	1/18/04 06:54 p	0.25	LSC3
							Rec Limits:	70	130	-0.1		G	
Batch: 3353367	TC99_ETVDSK_LSC			**Work Order:**	F64F01AC		**Report DB ID:**	F64F01CS					
TC-99	2.06E+02		1.97E+00	1.27E+01	6.36E-01	pCi/g	100%	2.26E+02	2.88E+00	91%	1/16/04 06:15 a	2.0	LSC4
							Rec Limits:	70	130	-0.1		G	
Batch: 3353365	906.0_H3_LSC			**Work Order:**	F64FV1AC		**Report DB ID:**	F64FV1CS					
H-3	1.38E+00		1.76E-01	1.93E-01	2.75E-01	pCi/g	100%	1.36E+00	4.71E-02	101%	12/23/03 10:10 p	10.0	LSC4
							Rec Limits:	70	130	0.0		G	
Batch: 3353374	GAMMA_GS			**Work Order:**	F64F71AC		**Report DB ID:**	F64F71CM					
CS-137	7.99E-01		1.24E-01	1.24E-01	6.96E-02	pCi/g		9.39E-01	9.00E-01	85%	1/15/04 11:09 a	26.61	GER7$1
							Rec Limits:	70	130	-0.1		g	

STL Richland
rptStlRchLcs
V4.05 A97

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.

FORM II

LCS RESULTS

Date: 23-Jan-04

Lab Name: STL Richland

Matrix: SOIL

SDG: W04230

Report No. : 24696

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
RA-226	1.56E+00		2.84E-01	2.84E-01	1.19E-01	pCi/g		2.14E+00	3.62E-01	73%	1/15/04 11:09 a	26.61	GER7$1
							Rec Limits:	70	130	-0.3		g	
Batch: 3353364	SRTOT_SEP_PRECIP_GPC			Work Order:	F64FR1AC		Report DB ID:	F64FR1CS					
STRONTIUM	1.02E+00		1.51E-01	3.10E-01	1.62E-01	pCi/g	61%	1.14E+00	1.38E-02	89%	1/16/04 06:36 a	6.0	GPC27D
							Rec Limits:	20	105	-0.1		G	

No. of Results: 10 **Comments:**

18

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

rptSTLRchLcs
V4.05 A97

FORM II

Date: 23-Jan-04

MATRIX SPIKE RESULTS

Lab Name: STL Richland **SDG:** W04230

Lot-Sample No.: J3L170303-1 **Report No. :** 24696 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2s)	Total Uncert(2s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3353367	TC99_ETVDSK_LSC			**Work Order:**	F6W841AL		**Report DB ID:**	F6W841LW		**Orig Sa DB ID:**	9F6W8410		
TC-99	2.08E+02		1.98E+00	1.28E+01	6.34E-01	pCi/g	100%	91.47%	2.27E+02	1.91E+0(	1/16/04 03:09 a	2.0	LSC4
	6.30E-02	RPD	32.5									G	

No. of Results: 1 **Comments:**

19

STL Richland
rptSTLRchMs
V4.05 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.

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L170303
Client ID: FLH
Due Date: 1/19/2004
QC Batch Number: 3353373
Method Test Parameter: S1 - THISO
Matrix: SOIL
SDG Number: W04230

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?		✓	
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response: Spike fails – almost like no spike vial added. or not added No Beta counts Run along w/ bat # 3353385 which has 107% yield recovery 19-01661
PA 1-22-04

First Level Review: Pam Anderson Date: 1-21-04

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353373

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	See NCM	✓	
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 1-22-04

LS-038B, Rev. 10, 8/02

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: 10-01661
NCM Initiated By: Pam Anderson
Date Opened: 01/21/2004
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Sep
Tests: Thlso by ALP
Lot #'s (Sample #'s): J3L170303 (1), J3L190000 (373),
QC Batches: 3353373

Nonconformance: LCS result out of limits
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	01/21/2004	No spike peak shows in the spike sample nor do any beta counts show from a tracer. The tracers for the samples and the blank are good. This batch was prepped and separated along with batch 3353385, a soil batch from the same client. The data will be accepted on the spike from this other batch.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	01/21/2004	None at this time.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L170303
Client ID: FLH
Due Date: 1/19/2003
QC Batch Number: 3353374
Method Test Parameter: TA GAMMA BY HPGE
Matrix: SOIL
SDG Number:

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓	✓	
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?			✓
E. Other 1. Are all Nonconformances included and noted? 10-01636	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: [signature] Date: 1-19-04

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353374

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓	✓	
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: See NCM

Second Level Review: [signature] Date: 1-22-04

LS-038B, Rev. 10, 8/02

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: 10-01636
NCM Initiated By: Dale O'Connell
Date Opened: 01/19/2004
Date Closed:

Classification: Anomaly
Status: PMREVIEW
Production Area: Environmental - Prep
Tests: Gamma by GER
Lot #'s (Sample #'s): J3L170303 (1), J3L190000 (374),
QC Batches: 3353374

Nonconformance: Insufficient sample volume for QC
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Dale O'Connell	01/19/2004	Insufficient sample to generate a duplicate.

Corrective Action

Name	Date	Corrective Action
Dale O'Connell	01/19/2004	Precision determination achieved by recounting sample on a different detector. Report results.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L170303
Client ID: FHI
Due Date: 1/19/04
QC Batch Number: 3353364
Method Test Parameter: TH - TSR
Matrix: SOIL
SDG Number: W04230

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	√		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	√		
2. Are the QC appropriate for the analysis included in the batch?	√		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	√		
4. Does the Worksheets include a Tracer Vial label for each sample?	√		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	√		
2. Is the LCS result, yield and MDA within contract limits?	√		
3. Are the MS/MSD results, yields and MDAs within contract limits?			√
4. Are the duplicate results, yields and MDAs within contract limits?	√		
5. Are the sample yields and MDAs within contract limits?	√		
D. Raw Data 1. Were results calculated in the correct units?	√		
2. Were analysis volumes entered correctly?	√		
3. Were yields entered correctly?			√
4. Were spectra reviewed/meet contractual requirements?			√
5. Were raw counts reviewed for anomalies?	√		
E. Other 1. Are all Nonconformances included and noted?			√
2. Are all required forms filled out?	√		
3. Was the correct methodology used?	√		
4. Was transcription checked?	√		
5. Were all calculations checked at a minimum frequency?	√		
6. Are worksheet entries complete and correct?	√		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 1-16-04

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353364

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review: Beverly [illegible] Date: 1-17-04

LS-038B, Rev. 10, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L170303
Client ID: FLH
Due Date: 1/19/2003
QC Batch Number: 3353370
Method Test Parameter: S3 CARBON-14
Matrix: SOIL
SDG Number: W09230

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?			✓
5. Were raw counts reviewed for anomalies?	✓		
E. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 12-29-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353370

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?			

Comments on any "No" response: _____

Second Level Review: Beverly [illegible] Date: 12-29-03

LS-038B, Rev. 10, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L170303
Client ID: FLH
Due Date: 1/19/2004
QC Batch Number: 3353368
Method Test Parameter: S4 – NI63
Matrix: SOIL
SDG Number: WO 42230

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?	✓		
4. Were spectra reviewed/meet contractual requirements?			✓
5. Were raw counts reviewed for anomalies?	✓		
E. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 1-20-04

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353368

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		1-22-04
8. Do the MS/MSD results and yields meet acceptance criteria?	102104		✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 1-22-04

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L170303
Client ID: ~~PNA~~ FLH SES 1/22/04
Due Date: 1/19/04
QC Batch Number: 3353367
Method Test Parameter: S5 – TC99
Matrix: SOIL
SDG Number: W04230

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?	✓		
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?	✓		
4. Were spectra reviewed/meet contractual requirements?			✓
5. Were raw counts reviewed for anomalies?	✓		
E. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: John Norton Date: 1-20-4

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353367

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	√		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	√		
3. Are the correct isotopes reported?	√		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	√		
2. Does the blank result meet the Contract criteria?	√		
3. Is the blank result < the Contract Detection Limit?	√		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			√
5. Is the LCS recovery with contract acceptance criteria?	√		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	√		
8. Do the MS/MSD results and yields meet acceptance criteria?	√		
9. Do the duplicate sample results and yields meet acceptance criteria?	√		
C. Other 1. Are all Nonconformances included and noted?			√
2. Are all required forms filled out?	√		
3. Was the correct methodology used?	√		
4. Was transcription checked?	√		
5. Were all calculations checked at a minimum frequency?	√		
6. Were units checked?	√		

Comments on any "No" response:

Second Level Review: Theresa H Kallsen Date: 1-22-04

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3L 170303
Client ID: FLH
Due Date: 1/19/2004
QC Batch Number: 335 3365
Method Test Parameter: S6 H3
Matrix: SOIL
SDG Number: W04230

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?			✓
5. Were raw counts reviewed for anomalies?	✓		
E. Other 1. Are all Nonconformances included and noted?		✓	
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 12-29-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3353365

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		BJ 12-30-03
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Beverly [illegible] Date: 12-30-03

CHAIN OF CUSTODY

50639 Q-~~29754~~ FLH.

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-025-018	Page 1 of 1
Collector: Pope, Pfister, HUGHES	Company Contact: TRENT, STEVE — Telephone No.: 373-5689	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: ~~45 Days~~ 30 day
Project Designation: 200-LW-1/LW-2 Characterization - Soil	Sampling Location: 216-B-58 (22.5 - 25 ft)	SAF No.: F03-025	Air Quality: [ ]
Ice Chest No.	Field Logbook No.: HNF-N-3066-1 — COA: 119143ES10	Method of Shipment: GOVT VEHICLE	Per S. Trent 12/18/03
Shipped To: Severn Trent Incorporated, Richland	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Rad due to B17RV1

Special Handling and/or Storage

Preservation	Cool 4C	None									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	250mL	250mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.									

SDG W04230

J3L170303 Due 1-31-04

Sample No.	Matrix *	Sample Date	Sample Time										
B17RV0 FloW84	SOIL	12-7-3	10:30	—	—								

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From	Date/Time 16:00	Received By/Stored In: Site trailer RMA Fridge — Date/Time 12-7-3/16:00
Relinquished By/Removed From: Site Trailer RMA	Date/Time 12-9-03 1230	Received By/Stored In: TMadsen/TMadsen — Date/Time 1230 12-9-03
Relinquished By/Removed From: TMadsen/TMadsen	Date/Time 12-9-03 1430	Received By/Stored In: KLH — Date/Time 12-9-03 1430
Relinquished By/Removed From: NO-226 KLH	Date/Time 12/17/03 0930	Received By/Stored In: M.H. Bachter/M.H. Bachter — Date/Time 12/17/03 0930
Relinquished By/Removed From: M.H. Bachter/M.H. Bachter	Date/Time 12/17/03 1130	Received By/Stored In: 2100 CPH Rhinehart — Date/Time 11:50 12/17/03
Relinquished By/Removed From	Date/Time	Received By/Stored In — Date/Time

SPECIAL INSTRUCTIONS

(1) Chromium Hex - 7196; NO2/NO3 - 353.1; Sulfides - 9030; Oil & Grease - 413.1
(2) Nickel-63; Gamma Spec - Radium {Radium-226, Radium-228}; Technetium-99; Isotopic Thorium {Thorium-232}; Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr

Matrix *
S=Soil
SE=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

WA-6003-618(03/03) ① MBB 12/17/03

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031637

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001134	B17RV1	TRENT	12587-46-1	Gross alpha	SOIL	LA-508-421	U	1.00	pCi/g	1.00	2.0	12/10/03	12/07/03	12/09/03
W030001134	B17RV1	TRENT	E,T,C	Alpha error by LC	SOIL	LA-508-421	+-	0.90	pCi/g	1.00	0.0	12/10/03	12/07/03	12/09/03
W030001134	B17RV1	TRENT	12587-47-2	Gross beta	SOIL	LA-508-421		17.0	pCi/g	1.00	3.0	12/10/03	12/07/03	12/09/03
W030001134	B17RV1	TRENT	E,T,C	Beta error by LC	SOIL	LA-508-421	+-	8.5	pCi/g	1.00	0.0	12/10/03	12/07/03	12/09/03
W030001135	B17RW3	TRENT	12587-46-1	Gross alpha	SOIL	LA-508-421	U	2.10	pCi/g	1.00	1.8	12/10/03	12/09/03	12/09/03
W030001135	B17RW3	TRENT	E,T,C	Alpha error by LC	SOIL	LA-508-421	+-	3.9	pCi/g	1.00	0.0	12/10/03	12/09/03	12/09/03
W030001135	B17RW3	TRENT	12587-47-2	Gross beta	SOIL	LA-508-421		26.0	pCi/g	1.00	3.8	12/10/03	12/09/03	12/09/03
W030001135	B17RW3	TRENT	E,T,C	Beta error by LC	SOIL	LA-508-421	+-	8.3	pCi/g	1.00	0.0	12/10/03	12/09/03	12/09/03

B17RV0

B17RW1

MDL=Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1
Ground Water Protection Program

20

SEVERN TRENT STL

Sample Check-in List

Date/Time Received: 12/17/03 @ 1150 ar

Client: FHI SDG #: W04230 NA [ ] SAF #: F03-025 NA [ ]

Work Order Number: J3L170303 Chain of Custody # F03-025-018

Shipping Container ID: N/A Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: 6°C NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [X] Yes [ ] No [ ]
8. Samples have:
   ____ tape
   X custody seals
   X 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 [ ] pH>9 [ ]
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 Richards Date: 12/17/03

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, 9/03, Rev. 5

1/6/2004 10:44:58 AM

Sample Preparation/Analysis

Balance Id:1120373922

108302, FLUOR HANFORD IC , Flour
Hanford Inc

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

Pipet #: _____

Report Due: 01/19/2004 W04230

Sep1 DT/Tm Tech:

Batch: 3353373 SOIL pCi/g PM, Quote: BG2, 50639

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

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 F6W84-1-AD J3L170303-1-SAMP		1.0g,in	THTC6654 12/31/03 12/09/03,r		200			
12/07/2003 10:30	(1g)	AmtRec: 250G	#Containers: 1				Scr Rst: Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
2 F6W84-1-AQ-X J3L170303-1-DUP		1.0g,in	THTC6655 12/31/03 12/09/03,r					
12/07/2003 10:30	(1g)	AmtRec: 250G	#Containers: 1				Scr Rst: Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
3 F64F6-1-AA-B J3L190000-373-BLK		2.0g,in	THTC6656 12/31/03 12/09/03,r					
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
4 F64F6-1-AC-C J3L190000-373-LCS		2.0g,in	THSI0685 12/31/03 12/09/03,r					
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:

Comments: Reduced aliquots targeted in parenthesis. JL 1-8-04
Samples were muffled. JL 1-8-04

All Clients for Batch:
108302, FLUOR HANFORD IC Flour Hanford Inc , BG2, 50639

F6W841AD-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

F64F61AA-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

1/21/04 11:04:25 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/22/03, 1/22/04, Batch: '3353373', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353373						
AC		CalcC	SCHERRT	12/22/03 9:26:35 AM		jwDone
SC			wagarr	IsBatched	12/19/03 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/03 9:26:35 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/23/03 3:52:52 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/30/03 10:34:41 AM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep2C	1/13/04 2:28:17 PM	RICH-RC-5019 REVISION 4
SC			RiceL	InSep1	1/14/04 8:31:52 AM	RICH-RC-5084 REVISION 0
SC			RiceL	Sep1C	1/20/04 6:36:32 AM	RICH-RC-5084 REVISION 0
SC			McPHERONC	Sep2C	1/20/04 9:39:21 AM	RICH-RC-5003 REVISION 4
SC			HUGHESJ	InCnt1	1/20/04 10:46:43 AM	RICH-RD-0008 REVISION 2
SC			BlackCL	CalcC	1/20/04 8:25:56 PM	RICH-RD-0008 REVISION 2
AC			SCHERRT	12/23/03 3:52:52 PM		
AC			WAGNERJ	12/30/03 10:34:41		
AC			WAGNERJ	1/13/04 2:28:17 PM		
AC			RiceL	1/14/04 8:31:52 AM		
AC			RiceL	1/20/04 6:36:32 AM		
AC			McPHERONC	1/20/04 9:39:21 AM		
AC			HUGHESJ	1/20/04 10:46:43 AM		
AC			BlackCL	1/20/04 8:25:56 PM		

AC: Accepting Entry; SC: Status Change

FLH SOIL

12/23/2003 3:36:31 PM

Sample Preparation/Analysis

108302, FLUOR HANFORD IC , Flour
Hanford Inc

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

Balance Id:1120421763
Pipet #: NA

Report Due: 01/19/2004 W04230

Batch: 3353374 SOIL pCi/g PM, Quote: BG2, 50639

SEQ Batch, Test: None

Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: ,SCHERRT

(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 F6W84-1-AG J3L170303-1-SAMP		77.6g,in				325	1000	66	0551	1/13/04
12/07/2003 10:30		AmtRec: 250G	#Containers: 1					Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
2 F6W84-1-AR-X J3L170303-1-DUP		77.6g,in						64	1/15 0454	1/14/04
12/07/2003 10:30		AmtRec: 250G	#Containers: 1					Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
3 F64F7-1-AA-B J3L190000-374-BLK		52.0g,in Blank Fine Ottawa Sand						67	0552	1/13/04
12/07/2003 10:30		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:
4 F64F7-1-AC-C J3L190000-374-LCS		26.61g,in	CAL3122 01/01/03 01/01/03 r					67	1/16 0349	1/15/04
12/1/03 ~~12/07/2003 10:30~~ LH 12/23/03		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:

Comments: Recount DUP on different detector not enough sample
10 day ingrowth starts 12/23/03 LH 12/23/03 NM 12/23/03

All Clients for Batch:
108302, FLUOR HANFORD IC Flour Hanford Inc , BG2, 50639

F6W841AG-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:
Cs-137DA	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:

F64F71AA-BLK:

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

12/19/2003 11:32:41 AM

Sample Preparation/Analysis

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

Balance Id:

Pipet #:

Report Due: 01/19/2004

Sep1 DT/Tm Tech:

Batch: 3353374 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

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-154      RDL:1.00E-01   pCi/g   LCL:      UCL:      RPD:      Eu-155      RDL:1.00E-01   pCi/g   LCL:      UCL:      RPD:

F64F71AC-LCS:
 Cs-137      RDL:0.1        pCi/g   LCL:70    UCL:130   RPD:35    Cs-137DA    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
F6W841AG-SAMP Calc Info:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
F64F71AA-BLK:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
F64F71AC-LCS:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

1/19/04 8:22:18 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/20/03, 1/20/04, Batch: '3353374', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353374						
AC		CalcC	SCHERRT	12/22/03 9:26:24 AM		jwDone
SC			wagarr	IsBatched	12/19/03 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/03 9:26:24 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/23/03 3:51:33 PM	RICH-RC-5013 REVISION 4
SC			DAWKINSO	InCnt1	12/23/03 4:51:03 PM	RICH-RD-0007 REVISION 4
SC			BlackCL	CalcC	1/16/04 10:50:30 AM	RICH-RD-0007 REVISION 4
AC			SCHERRT	12/23/03 3:51:33 PM		JWdONE
AC			DAWKINSO	12/23/03 4:51:03 PM		
AC			BlackCL	1/16/04 10:50:30 AM		

44

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.708

1/6/2004 8:13:35 AM

Sample Preparation/Analysis

108302, FLUOR HANFORD IC , Flour
Hanford Inc

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

Report Due: 01/19/2004 W04230

Balance Id:1120373922 , #02
Pipet #: 10:37 AM m.f
Sep1 DT/Tm Tech: ~~1-13-04~~ 1-15-04 m.f. ~~1-14-04 PR~~
Sep2 DT/Tm Tech: NA
Prep Tech: ,WAGNERJ

Batch: 3353364 SOIL pCi/g PM, Quote: BG2, 50639

SEQ Batch, Test: None All Tests: 3353364 CHTH, 3353365 ATS6, 3353367 ANS5, 3353368 AFS4, 3353370 5SS3, 3353373 9RS1, 3353374
AXTA,

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 F6W84-1-AA J3L170303-1-SAMP		6.0g,in	SRTA10271 08/07/03 05/29/03,r			21.8	50	272	0659	1/16/04
12/07/2003 10:30		AmtRec: 250G	#Containers: 1					Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
2 F6W84-1-AJ-X J3L170303-1-DUP		5.99g,in	SRTA10272 08/07/03 05/29/03,r			30.1		273		
12/07/2003 10:30		AmtRec: 250G	#Containers: 1					Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
3 F64FR-1-AA-B J3L190000-364-BLK		6.0g,in	SRTA10573 10/03/03 09/11/03,r			61.6		27C		
12/07/2003 10:30		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:
4 F64FR-1-AC-C J3L190000-364-LCS		6.0g,in	STSB0821 12/19/03 11/11/03,r			61.2		27D		
12/07/2003 10:30		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:

Comments: SAMPLES HAD TO BE REWORKED During Sep 1 Due TO LOW YIELDS. 1-15-04 m.f

```
All Clients for Batch:
  108302, FLUOR HANFORD IC                    Flour Hanford Inc          , BG2, 50639

F6W841AA-SAMP Constituent List:
  Sr-90      RDL:1      pCi/g    LCL:70     UCL:130    RPD:35
F64FR1AA-BLK:
  Sr-90      RDL:1      pCi/g    LCL:       UCL:       RPD:
F64FR1AC-LCS:
  Sr-90      RDL:1      pCi/g    LCL:70     UCL:130    RPD:35
F6W841AA-SAMP Calc Info:
```

1/17/04 2:11:42 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/18/03, 1/18/04, Batch: '3353364', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353364						
AC		CalcC	SCHERRT	12/22/03 9:26:52 AM		jwDone
SC			wagarr	IsBatched	12/19/03 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/03 9:26:52 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/23/03 3:52:40 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	12/30/03 10:34:46 AM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep2C	1/8/04 1:32:16 PM	RICH-RC-5013 REVISION 4
SC			FABREM	InSep1	1/8/04 1:34:12 PM	RICH-RC-5006 REVISION 5
SC			FABREM	Sep1C	1/15/04 3:12:45 PM	RICH-RC-5006 REVISION 5
SC			HUGHESJ	InCnt1	1/15/04 3:29:45 PM	RICH-RD-0003 REVISION 3
SC			BlackCL	CalcC	1/16/04 8:47:24 AM	RICH-RD-0003 REVISION 3
AC			SCHERRT	12/23/03 3:52:40 PM		
AC			WAGNERJ	12/30/03 10:34:46		
AC			WAGNERJ	1/8/04 1:32:16 PM		
AC			FABREM	1/8/04 1:34:12 PM		
AC			FABREM	1/15/04 3:12:45 PM		
AC			HUGHESJ	1/15/04 3:29:45 PM		
AC			BlackCL	1/16/04 8:47:24 AM		

46

AC: Accepting Entry; SC: Status Change

12/19/2003 11:32:39 AM

Sample Preparation/Analysis

Balance Id: 029

108302, FLUOR HANFORD IC , Flour
Hanford Inc

5S C-14 Prp/SepRC5022
S3 Carbon-14 by Liquid Scint
5I CLIENT: HANFORD

Pipet #:

Report Due: 01/19/2004 W04230

Sep1 DT/Tm Tech: 12-22-03pw

Batch: 3353370 SOIL pCi/g PM, Quote: BG2, 50639

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

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 F6W84-1-AH J3L170303-1-SAMP								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1				Scr Rst:	Alpha: 6.11E+01 pCi/g Beta: 2.30E+01 pCi/g
2 F6W84-1-AP-X J3L170303-1-DUP								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1				Scr Rst:	Alpha: 6.11E+01 pCi/g Beta: 2.30E+01 pCi/g
3 F64F5-1-AA-B J3L190000-370-BLK								
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst:	Alpha: Beta:
4 F64F5-1-AC-C J3L190000-370-LCS								
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst:	Alpha: Beta:
5 F64F5-1-AD-BN J3L190000-370-IBLK								
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst:	Alpha: Beta:

Comments:

All Clients for Batch:
108302, FLUOR HANFORD IC Flour Hanford Inc , BG2, 50639

F6W841AH-SAMP Constituent List:
C-14 RDL:50 pCi/g LCL:70 UCL:130 RPD:35

STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
Richland Wa. r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 5
ICOC v4.708

12/29/03 11:00:34 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/29/03, 12/30/03, Batch: '3353370', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353370						
AC		**CalcC**	**SCHERRT**	12/22/03 9:27:16 AM		jwDone
SC			wagarr	IsBatched	12/19/03 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/03 9:27:16 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/22/03 2:13:26 PM	RICH-RC-5013 REVISION 4
SC			McDowellD	InSep1	12/22/03 4:22:31 PM	RICH-RC-5022 REVISION 3
SC			McDowellD	Sep1C	12/23/03 11:00:03 AM	RICH-RC-5022 REVISION 3
SC			BlackCL	InCnt1	12/23/03 1:23:46 PM	RICH-RD-0001 REVISION 2
SC			BlackCL	CalcC	12/26/03 6:37:09 AM	RICH-RD-0001 REVISION 2
AC			**SCHERRT**	12/22/03 2:13:26 PM		jwDone
AC			**McDowellD**	12/22/03 4:22:31 PM		
AC			**McDowellD**	12/23/03 11:00:03		
AC			**BlackCL**	12/23/03 1:23:46 PM		
AC			**BlackCL**	12/26/03 6:37:09 AM		

48

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 6

ICOCFractions v4.708

1/6/2004 9:29:40 AM

Sample Preparation/Analysis

Balance Id:1120373922 / #21

108302, FLUOR HANFORD IC , Flour
Hanford Inc

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

Pipet #:

Report Due: 01/19/2004

Sep1 DT/Tm Tech:

Batch: 3353368 SOIL pCi/g PM, Quote: BG2, 50639

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 F6W84-1-AC J3L170303-1-SAMP			0.2501g,in	0.25g	NITA1781 12/31/03 12/02/02,r		100			
12/07/2003 10:30		AmtRec: 250G		#Containers: 1				Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
2 F6W84-1-AN-X J3L170303-1-DUP			0.2497g,in	0.25g	NITA1776 10/09/03 12/02/02,r					
12/07/2003 10:30		AmtRec: 250G		#Containers: 1				Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
3 F64F2-1-AA-B J3L190000-368-BLK			0.25g,in	0.25g	NITA1777 12/31/03 12/02/02,r					
12/07/2003 10:30		AmtRec:		#Containers: 1				Scr Rst:	Alpha:	Beta:
4 F64F2-1-AC-C J3L190000-368-LCS			0.25g,in	0.25g	NISA0561 03/25/03					
12/07/2003 10:30		AmtRec:		#Containers: 1				Scr Rst:	Alpha:	Beta:
5 F64F2-1-AD-BN J3L190000-368-IBLK										
12/07/2003 10:30		AmtRec:		#Containers: 1				Scr Rst:	Alpha:	Beta:

Comments:

All Clients for Batch:
108302, FLUOR HANFORD IC Flour Hanford Inc , BG2, 50639

F6W841AC-SAMP Constituent List:
Ni-63 RDL:30 pCi/g LCL:70 UCL:130 RPD:35

STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
Richland Wa. r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 5
Prep_SamplePrep v4.6

Sample Preparation/Analysis

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

Report Due: 01/19/2004

Batch: 3353368 pCi/g

SEQ Batch, Test: None

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

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

```
F64F21AA-BLK:
 Ni-63        RDL:30          pCi/g     LCL:        UCL:        RPD:
F64F21AC-LCS:
 Ni-63        RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
F64F21AD-IBLK:
 Ni-63        RDL:30          pCi/g     LCL:        UCL:        RPD:
F6W841AC-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
F64F21AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
F64F21AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
F64F21AD-IBLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```


50

1/20/04 1:44:28 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/21/03, 1/21/04, Batch: '3353368', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353368						
AC		CalcC	SCHERRT	12/22/03 9:26:44 AM		jwDone
SC			wagarr	IsBatched	12/19/03 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/03 9:26:44 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/23/03 3:52:46 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep2C	1/8/04 1:32:25 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InSep1	1/16/04 11:20:02 AM	RICH-RC-5069 REVISION 4
SC			WAGNERJ	Sep1C	1/16/04 2:50:38 PM	RICH-RC-5069 REVISION 4
SC			HUGHESJ	InCnt1	1/16/04 3:16:53 PM	RICH-RD-0001 REVISION 2
SC			HUGHESJ	CalcC	1/20/04 9:06:20 AM	RICH-RD-0001 REVISION 2
AC			SCHERRT	12/23/03 3:52:46 PM		
AC			WAGNERJ	1/8/04 1:32:25 PM		
AC			WAGNERJ	1/16/04 11:20:02 AM		
AC			WAGNERJ	1/16/04 2:50:38 PM		
AC			HUGHESJ	1/16/04 3:16:53 PM		
AC			HUGHESJ	1/20/04 9:06:20 AM		

51

AC: Accepting Entry; SC: Status Change

12/19/2003 11:32:38 AM

Sample Preparation/Analysis

108302, FLUOR HANFORD IC , Flour
Hanford Inc

AN Tc-99 Prp/SepRC5013/5078
S5 Technetium-99 by Liquid Scint
5I CLIENT: HANFORD

Report Due: 01/19/2004 W04230

Batch: 3353367 SOIL pCi/g PM, Quote: BG2, 50639

SEQ Batch, Test: None

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

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 F6W84-1-AE J3L170303-1-SAMP								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1			Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
2 F6W84-1-AL-S J3L170303-1-MS								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1			Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
3 F6W84-1-AM-X J3L170303-1-DUP								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1			Scr Rst:	Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
4 F64F0-1-AA-B J3L190000-367-BLK								
12/07/2003 10:30		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
5 F64F0-1-AC-C J3L190000-367-LCS								
12/07/2003 10:30		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 F64F0-1-AD-BN J3L190000-367-IBLK								
12/07/2003 10:30		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

12/19/2003 11:32:39 AM

Sample Preparation/Analysis

AN Tc-99 Prp/SepRC5013/5078
S5 Technetium-99 by Liquid Scint
5I CLIENT: HANFORD

Report Due: 01/19/2004

Batch: 3353367 pCi/g

SEQ Batch, Test: None

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

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:
108302, FLUOR HANFORD IC Flour Hanford Inc , BG2, 50639

F6W841AE-SAMP Constituent List:
Tc-99 RDL:15 pCi/g LCL:70 UCL:130 RPD:35
F6W841AL-MS Constituent List:

F64F01AA-BLK:
Tc-99 RDL:15 pCi/g LCL: UCL: RPD:
F64F01AC-LCS:
Tc-99 RDL:15 pCi/g LCL:70 UCL:130 RPD:35
F64F01AD-IBLK:
Tc-99 RDL:15 pCi/g LCL: UCL: RPD:

F6W841AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
F6W841AL-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
F64F01AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
F64F01AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
F64F01AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

1/20/2004 2:32:12 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/21/2003, 1/21/2004, Batch: '3353367', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353367						
AC		CalcC	SCHERRT	12/22/2003 9:27:00		jwDone
SC			wagarr	IsBatched	12/19/2003 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/2003 9:27:00 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/23/2003 10:21:37 AM	RICH-RC-5013 REVISION 4
SC			SILLIMANT	Sep1C	1/15/2004 12:45:56 PM	RICH-RC5078 REVISION2
SC			HUGHESJ	InCnt1	1/15/2004 12:58:47 PM	RICH-RD-0001 REVISION 2
SC			BlackCL	CalcC	1/19/2004 3:02:30 PM	RICH-RD-0001 REVISION 2
AC			SCHERRT	12/23/2003 10:21:37		jwDone
AC			SILLIMANT	1/15/2004 12:45:56		
AC			HUGHESJ	1/15/2004 12:58:47		
AC			BlackCL	1/19/2004 3:02:30 PM		

54

AC: Accepting Entry; SC: Status Change

12/19/2003 11:32:37 AM

Sample Preparation/Analysis

Balance Id: 028

108302, FLUOR HANFORD IC , Flour
Hanford Inc

AT H-3 Prp/SepRC5037
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Pipet #:

Report Due: 01/19/2004 W04230

Sep1 DT/Tm Tech: 12-27-03 am

Batch: 3353365 SOIL pCi/g PM, Quote: BG2, 50639

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

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 F6W84-1-AF J3L170303-1-SAMP								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1				Scr Rst: Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
2 F6W84-1-AK-X J3L170303-1-DUP								
12/07/2003 10:30		AmtRec: 250G	#Containers: 1				Scr Rst: Alpha: 6.11E+01 pCi/g	Beta: 2.30E+01 pCi/g
3 F64FV-1-AA-B J3L190000-365-BLK								
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
4 F64FV-1-AC-C J3L190000-365-LCS								
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
5 F64FV-1-AD-BN J3L190000-365-IBLK								
12/07/2003 10:30		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:

Comments:

All Clients for Batch:
108302, FLUOR HANFORD IC Flour Hanford Inc , BG2, 50639

F6W841AF-SAMP Constituent List:
H-3 RDL:400 pCi/g LCL:70 UCL:130 RPD:35

12/29/03 11:00:41 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/29/03, 12/30/03, Batch: '3353365', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3353365						
AC		CalcC	SCHERRT	12/22/03 9:27:09 AM		jwDone
SC			wagarr	IsBatched	12/19/03 11:32:16 AM	ICOC_RADCALC v4.708
SC			SCHERRT	InPrep	12/22/03 9:27:09 AM	RICH-RC-5013 REVISION 4
SC			SCHERRT	Prep1C	12/22/03 2:13:20 PM	RICH-RC-5013 REVISION 4
SC			McDowellD	InSep1	12/22/03 4:22:07 PM	RICH-RC-5037 REVISION 3
SC			McDowellD	Sep1C	12/23/03 11:01:11 AM	RICH-RC-5037 REVISION 3
SC			BlackCL	InCnt1	12/23/03 1:26:31 PM	RICH-RD-0001 REVISION 2
SC			BlackCL	CalcC	12/24/03 6:28:45 AM	RICH-RD-0001 REVISION 2
AC			SCHERRT	12/22/03 2:13:20 PM		jwDone
AC			McDowellD	12/22/03 4:22:07 PM		
AC			McDowellD	12/23/03 11:01:11		
AC			BlackCL	12/23/03 1:26:31 PM		
AC			BlackCL	12/24/03 6:28:45 AM		

56

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 6

ICOCFractions v4.708

SEVERN TRENT STL

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

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

ANALYTICAL REPORT

JAN 2004 RECEIVED

PROJECT NO. 200-LW-1/LW-2

F03-025

Lot #: F3L180330
SDG #: W04230

Steve Trent

Fluor Hanford Inc
MSIN A0-21
PO Box 1000
Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

MARTI WARD
Project Manager

January 14, 2004

SEVERN TRENT STL

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

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

January 15, 2004

STL LOT NUMBER: **F3L180330**
SDG: **W04230**

Steve Trent
Fluor Hanford Inc
MSIN A0-21
PO Box 1000
Richland, WA 99352

JAN 2004
RECEIVED

Dear Steve Trent,

This report contains the analytical results for the sample received under chain of custody by Severn Trent Laboratories (STL) on December 18, 2003. This sample is associated with your F03-025 SAF.

All applicable quality control procedures met method-specified acceptance criteria.

QC was not run for Hexavalent Chromium on a sample from this SDG. This QC was run on sample B183M6 from SDG W04233. A copy of those results is inlcuded in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. This report is incomplete without the Case Narrative. Results are reported "as received" (i.e. wet weight) unless otherwise noted.

If you have any questions, please feel free to call me at (314) 298-8566.

Sincerely,

Marti Ward
Project Manager

cc: Project File

SAMPLE SUMMARY

F3L180330

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F62T9	001	B17RV0	12/07/03	10:30

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

F3L180330

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Hexavalent Chromium	SW846 7196A	SW846 7196A/DI
Nitrate-Nitrite	MCAWW 353.1	
Oil & Grease (Gravimetric)	SW846 9071A	
Sulfide	SW846 9030	

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.

50671 W-~~24134~~ + LH.

LOT# F3L180330

STL ST. LOUIS

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-025-018	Page 1 of 1

Collector: Pope, Pfister, HUGHES	Company Contact: TRENT, STEVE	Telephone No.: 373-5689	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: ~~45~~ Days 30 per S. Trent 12-18-03	Air Quality:	
Project Designation: 200-LW-1/LW-2 Characterization - Soil	Sampling Location: 216-B-58 (22.5 - 25 ft)	SAF No.: F03-025	
Ice Chest No.	Field Logbook No.: HNF-N-2506-1	COA: 119143ES10	Method of Shipment: GOVT VEHICLE
Shipped To: Severn Trent Incorporated, Richland	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Rad due to B17RV1

Special Handling and/or Storage

Preservation	Cool 4C	None	
Type of Container	G/P	G/P	
No. of Container(s)	1	1	
Volume	250mL	250mL	

SDG W04230

SAMPLE ANALYSIS

J3L170303 ~~Due 1-31-04~~ MW

				See item (1) in Special Instructions.	See item (2) in Special Instructions.	
Sample No.	Matrix *	Sample Date	Sample Time			
B17RV0 FloW 84	SOIL	12-7-3	10:30	—	—	2500.

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From		16:00
Received By/Stored In	Fridge site trailer RMA	12-7-3 16:00
Relinquished By/Removed From	Site Trailer RMA	12-9-03 1230
Received By/Stored In	Marmarsen/Marmarsen	12-9-03 1230
Relinquished By/Removed From	Marmarsen/Marmarsen	12-9-03 1430
Received By/Stored In	Kb #2	12-9-03 1430
Relinquished By/Removed From		12/12/03 0830
Received By/Stored In	M.H. Dorchester/M.H. Dorchester	12/12/03 0830
Relinquished By/Removed From	M.H. Dorchester/M.H. Dorchester	12/17/03 1130
Received By/Stored In	A. Rhineheart	12/17/03 11:50
Relinquished By/Removed From	A. Rhineheart	12/17/03 14:30
Received By/Stored In		

SPECIAL INSTRUCTIONS

(1) Chromium Hex - 7196; NO2/NO3 - 353.1; Sulfides - 9030; Oil & Grease - 413.1
(2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr

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: Kris Ahers	Title: Sample Control	Date/Time: 12/18/03 0900
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

A-6003-618(03/03) ① MWM 12/17/03

SDG#W04230

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031637

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001134	B17RV1	TRENT	12587-46-1	Gross alpha	SOIL	LA-508-421	U		1.00	pCi/g	1.00	2.0	12/10/03	12/07/03	12/09/03
W030001134	B17RV1	TRENT	E.T.C	Alpha error by LC	SOIL	LA-508-421		+-	0.90	pCi/g	1.00	0.0	12/10/03	12/07/03	12/09/03
W030001134	B17RV1	TRENT	12587-47-2	Gross beta	SOIL	LA-508-421			17.0	pCi/g	1.00	3.0	12/10/03	12/07/03	12/09/03
W030001134	B17RV1	TRENT	E.T.C	Beta error by LC	SOIL	LA-508-421		+-	8.5	pCi/g	1.00	0.0	12/10/03	12/07/03	12/09/03
W030001135	B17RW3	TRENT	12587-46-1	Gross alpha	SOIL	LA-508-421	U		2.10	pCi/g	1.00	1.8	12/10/03	12/09/03	12/09/03
W030001135	B17RW3	TRENT	E.T.C	Alpha error by LC	SOIL	LA-508-421		+-	3.9	pCi/g	1.00	0.0	12/10/03	12/09/03	12/09/03
W030001135	B17RW3	TRENT	12587-47-2	Gross beta	SOIL	LA-508-421			26.0	pCi/g	1.00	2.8	12/10/03	12/09/03	12/09/03
W030001135	B17RW3	TRENT	E.T.C	Beta error by LC	SOIL	LA-508-421		+-	8.3	pCi/g	1.00	0.0	12/10/03	12/09/03	12/09/03

B17RV0

B17RW1

MDL=Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1
Ground Water Protection Program

SEVERN TRENT STL

Sample Check-in List

Date/Time Received: 12/17/03 @ 1150 ar

Client: FHI SDG #: W04230 NA [ ] SAF #: F03-025 NA [ ]

Work Order Number: J3L170303 Chain of Custody # F03-025-018

Shipping Container ID: N/A Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: 6°C NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [X] Yes [ ] No [ ]
8. Samples have:
   ___ tape
   X custody seals
   X 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 [ ] pH>9 [ ]
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 Hunter | Richard Date: 12/17/03

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, 9/03, Rev. 5

STL SEVERN TRENT STL

Y

Lot No.: F3L180330
W04230

Condition Upon Receipt Form
St. Louis Laboratory

Client: Richland
Date: 12/18/03 Time: 0915
Quote No: 56392
Initiated by: KA
Shipper/No: See below
COC/RFA Numbers: See below

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: All 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: Shipper #'s

7917 3691 9740 9783 9761

79239287 3121 3096 3154

79173706 4240

Chain #s

W04-012-101, 102, 105, 109, 129, 133, 134, 211, 217, 223, 224

S04-012-65, 89, 93, 94, 115, 119, 407, 408

R104-010

F03-025-018 ✓

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: KAhers Date: 12/18/03

Project Management Review: mward Date: 12.19.03

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

WET CHEMISTRY

FLUOR HANFORD IC

Client Sample ID: B17RV0

General Chemistry

Lot-Sample #...: F3L180330-001 Work Order #...: F62T9 Matrix.....: SOLID
Date Sampled...: 12/07/03 Date Received..: 12/18/03
% Moisture.....:

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	0.47	0.40	mg/kg	SW846 7196A	01/06/04	4006381
		Dilution Factor: 1		MDL.....: 0.054		
Nitrate/Nitrite as N	5.1	0.50	mg/kg	MCAWW 353.1	12/23-12/26/03	3357542
		Dilution Factor: 1		MDL.....: 0.036		
Oil and Grease (Gravimetric)	46.7 B	200	mg/kg	SW846 9071A	01/01-01/05/04	4001116
		Dilution Factor: 1		MDL.....:		
Total Sulfide	ND	10.0	mg/kg	SW846 9030	12/30/03	3365166
		Dilution Factor: 1		MDL.....: 7.0		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F3L180330 **Work Order #...:** F62T9-SMP F62T9-DUP **Matrix.....:** SOLID

Date Sampled...: 12/07/03 **Date Received..:** 12/18/03

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N						SD Lot-Sample #:	F3L180330-001	
	5.1	5.0	mg/kg	1.6	(0-20)	MCAWW 353.1	12/23-12/26/03	3357542
			Dilution Factor: 1					
Total Sulfide						SD Lot-Sample #:	F3L180330-001	
	ND	ND	mg/kg	0	(0-35)	SW846 9030	12/30/03	3365166
			Dilution Factor: 1					
Oil and Grease (Gravimetric)						SD Lot-Sample #:	F3L180330-001	
	46.7 B	43.3 B	mg/kg	7.6	(0-35)	SW846 9071A	01/01-01/05/04	4001116
			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.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F3L180330 **Matrix.....:** SOLID
Date Sampled...: 12/07/03 **Date Received..:** 12/18/03

Percnt Moisture: 0.0

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N			Work Order #...:		F62T91AH		MS Lot-Sample #:	F3L180330-001
	5.1	5.00	10.5	mg/kg	108	MCAWW 353.1	12/23-12/26/03	3357542
Oil and Grease (Gravimetric)			Work Order #...:		F62T91AQ		MS Lot-Sample #:	F3L180330-001
	46.7	3330	2900	mg/kg	86	SW846 9071A	01/01-01/05/04	4001116
			Dilution Factor: 1					
Total Sulfide			Work Order #...:		F62T91AT		MS Lot-Sample #:	F3L180330-001
	ND	100	94.0	mg/kg	94	SW846 9030	12/30/03	3365166
			Dilution Factor: 1					

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F3L180330 **Matrix.....:** SOLID
Date Sampled...: 12/13/03 **Date Received..:** 12/19/03

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
							% Moisture.....: 9.9		
Hexavalent Chromium			WO#: F65E01CM-MS/F65E01CN-MSD				MS Lot-Sample #: F3L190375-001		
	0.70	40.0	40.9	mg/kg	100		SW846 7196A	01/06/04	4006381
	0.70	40.0	40.9	mg/kg	100	0.0	SW846 7196A	01/06/04	4006381
			Dilution Factor: 1						

NOTE(S):

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

Sample B183M6 (W04233 SAF F03-020) was the batch QC associated with this SDG.

MW 1.15.04

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F3L180330 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium		Work Order #: F7LXW1AA		MB Lot-Sample #:	F4A060000-381	
	ND	0.40	mg/kg	SW846 7196A	01/06/04	4006381
		Dilution Factor: 1				
Nitrate/Nitrite as N		Work Order #: F7AMW1AA		MB Lot-Sample #:	F3L230000-542	
	ND	0.50	mg/kg	MCAWW 353.1	12/23-12/26/03	3357542
		Dilution Factor: 1				
Oil and Grease (Gravimetric)		Work Order #: F7H181AA		MB Lot-Sample #:	F4A010000-116	
	ND	200	mg/kg	SW846 9071A	01/01-01/05/04	4001116
		Dilution Factor: 1				
Total Sulfide		Work Order #: F7GVE1AA		MB Lot-Sample #:	F3L310000-166	
	ND	10.0	mg/kg	SW846 9030	12/30/03	3365166
		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 #...: F3L180330 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N		WO#:F7AMW1AC-LCS/F7AMW1AD-LCSD				LCS Lot-Sample#: F3L230000-542		
	20.0	19.4	mg/kg	97		MCAWW 353.1	12/23-12/26/03	3357542
	20.0	19.6	mg/kg	98	0.51	MCAWW 353.1	12/23-12/26/03	3357542
			Dilution Factor: 1					
Oil and Grease (Gravimetric)		WO#:F7H181AC-LCS/F7H181AD-LCSD				LCS Lot-Sample#: F4A010000-116		
	3330	3100	mg/kg	93		SW846 9071A	01/01-01/05/04	4001116
	3330	3000	mg/kg	90	3.3	SW846 9071A	01/01-01/05/04	4001116
			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

Client Lot #...: F3L180330 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium			Work Order #: F7LXW1AC LCS Lot-Sample#: F4A060000-381				
	2.00	1.96	mg/kg	98	SW846 7196A	01/06/04	4006381
			Dilution Factor: 1				
Total Sulfide			Work Order #: F7GVE1AC LCS Lot-Sample#: F3L310000-166				
	100	92.0	mg/kg	92	SW846 9030	12/30/03	3365166
			Dilution Factor: 1				

NOTE(S):

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