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SEVERN TRENT SERVICES

STL Richland
2800 George Washington Way
Richland, WA 99352-1613

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

December 13, 2002

Melissa Gerrard
Fluor Hanford
2430 Stevens Center, Room 169
Richland, WA 99352

Reference: Contract 615

Dear Ms. Gerrard:

Accompanying this letter are the Data Package(s) and EDD(s) for the radiochemical analyses for the following Fluor Sample Delivery Groups:

SDG NUMBER	SAF NUMBER	LOT NUMBER
W03857	C02-047	J2I240123

If you have any questions regarding this data package or require any additional information please contact Barb Gillespie at 375-3131.

Receipt of this letter and the packages are acknowledged by:

Name _____ Date _____ Time _____

XC: File

DEC 2002 RECEIVED

RECEIVED FEB 07 2003 EDMC

Analytical Data Package Prepared For

Fluor Hanford Inc.

DEC 2002
RECEIVED

Radiochemical Analysis By

STL Richland

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

Assigned Laboratory Code: STLRL

Data Package Contains 33 *Pages*

Report No.: 21182

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03857	C02-047	B15741	J2I240123-1	E8P1A1AD	9E8P1A10	2275328
		B15741	J2I240123-1	E8P1A1AC	9E8P1A10	2275329
		B15741	J2I240123-1	E8P1A1AA	9E8P1A10	2275330

SEVERN TRENT SERVICES

CERTIFICATE OF ANALYSIS

Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

DEC 2002
RECEIVED

December 13, 2002

Attention: Steve Trent

SAF Number	:	C02-047
Date SDG Closed	:	September 30, 2002
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W03857
Data Deliverable	:	45-Day / Summary

I. Introduction

On September 23, 2002, 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, Inc. specific ID:

STLR ID#	Fluor ID#	MATRIX	DATE OF RECEIPT
E8P1A	B15741	WATER	9/23/02

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical errors.

The requested analysis was:

Gas Proportional Counting
Gross Beta by method RICH-RC-5014
Strontium-90 by method RICH-RC-5006
Liquid Scintillation Counting
Tritium by method RICH-RC-5007

III. Quality Control

The analytical results for each analysis performed under SDG W03857 includes a minimum of two Laboratory Control Samples (LCS) and one method (reagent) blank. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Gas Proportional Counting

Gross Beta by method RICH-RC-5014:

The LCS, batch blank, sample and sample duplicate (B15741) results are within contractual requirements.

Strontium-90 by method RICH-RC-5006:

The LCS, batch blank, sample and sample duplicate (B15741) results are within contractual requirements.

Liquid Scintillation Counting

Tritium by method RICH-RC-5007:

The LCS, batch blank, samples and sample duplicate (B15741) results are within contractual requirements.

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

Reviewed and approved:

Barbara M. Gillespie
Project Manager

Drinking Water Method Cross References

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

Uncertainty Estimation

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

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

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

Report Definitions

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

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 13-Dec-02

Report No. : 21182

SDG No: W03857

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
B15741	E8P1A1AD	SR-90	1.86E+03 +- 3.87E+02		pCi/L	66.13%	2.01E+00	
B15741	E8P1A1AC	H-3	4.12E+03 +- 3.53E+02		pCi/L	100.00%	3.35E+02	
B15741	E8P1A1AA	BETA	3.30E+03 +- 4.52E+02		pCi/L	100.00%	2.62E+00	
B15741 DUP	E8P1A1AE	SR-90	1.86E+03 +- 3.84E+02		pCi/L	68.18%	1.88E+00	0.0
B15741 DUP	E8P1A1AF	H-3	4.01E+03 +- 3.47E+02		pCi/L	100.00%	3.34E+02	0.5
B15741 DUP	E8P1A1AG	BETA	3.46E+03 +- 4.89E+02		pCi/L	100.00%	2.54E+00	0.5

Number of Results: 6

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

rptSTLRchSaSum
V3.96 A97

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

Date: 13-Dec-02

Report No. : 21182

SDG No.: W03857

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	E88491AA	SR-90	2.56E-02 +- 2.57E-01	U	pCi/L	66.77%			5.77E-01
BLANK QC	E885C1AA	H-3	9.97E+01 +- 1.48E+02	U	pCi/L	100.00%			3.29E+02
BLANK QC	E885C1AD	H-3	-1.46E+01 +- 1.40E+02	U	pCi/L	100.00%			3.30E+02
BLANK QC	E885G1AA	BETA	2.92E+00 +- 1.41E+00		pCi/L	100.00%			2.49E+00
LCS	E88491AC	SR-90	1.48E+01 +- 3.30E+00		pCi/L	64.79%	107.63%	0.1	6.23E-01
LCS	E885C1AC	H-3	3.03E+03 +- 3.02E+02		pCi/L	100.00%	109.69%	0.1	3.27E+02
LCS	E885C1AE	H-3	2.59E+03 +- 2.82E+02		pCi/L	100.00%	93.68%	-0.1	3.30E+02
LCS	E885G1AC	BETA	2.39E+01 +- 4.29E+00		pCi/L	100.00%	106.01%	0.1	2.54E+00

Number of Results: 8

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 I

SAMPLE RESULTS

Date: 13-Dec-02

Lab Name:	STL Richland	SDG:	W03857	Collection Date:	9/23/2002 11:20:00 AM
Lot-Sample No.:	J2I240123-1	Report No. :	21182	Received Date:	9/23/2002 3:00:00 PM
Client Sample ID:	B15741	COC No. :	C02-047-45	Matrix:	WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2275328	Work Order: E8P1A1AD			Report DB ID: 9E8P1A10								
SR-90	**1.86E+03**		2.44E+01	3.87E+02	2.01E+00	pCi/L	66.13%	*(928.5)*	12/13/02 09:37 a		0.3001	SRISO_SEP_PRECIP
						8.96E-01	2.00E+00	*(9.6)*			L	GPC3A
Batch: 2275329	Work Order: E8P1A1AC			Report DB ID: 9E8P1A10								
H-3	**4.12E+03**		3.12E+02	3.53E+02	3.35E+02	pCi/L	100.00%	*(12.3)*	11/12/02 03:45 p		0.01	906.0_H3_LSC
						1.54E+02	4.00E+02	*(23.4)*			L	LSC3
Batch: 2275330	Work Order: E8P1A1AA			Report DB ID: 9E8P1A10								
BETA	**3.30E+03**		2.65E+01	4.52E+02	2.62E+00	pCi/L	100.00%	*(1261.2)*	11/7/02 06:17 p		0.2001	9310_ALPHABETA_G
						1.24E+00	4.00E+00	*(14.6)*			L	GPC26D

Number of Results: 3

Comments:

STL Richland
rptSTLRchSample
V3.96 A97

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

FORM II

Date: 13-Dec-02

DUPLICATE RESULTS

Lab Name:	STL Richland	SDG:	W03857	Collection Date:	9/23/2002 11:20:00 AM
Lot-Sample No.:	J2I240123-1	Report No. :	21182	Received Date:	9/23/2002 3:00:00 PM
Client Sample ID:	B15741 DUP	COC No. :	C02-047-45	Matrix:	WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2275328	Work Order: E8P1A1AE			Report DB ID: E8P1A1ER		Orig Sa DB ID: 9E8P1A10						
SR-90	1.86E+03		2.37E+01	3.84E+02	1.88E+00	pCi/L	68.18%	(985.8)	12/13/02 09:37 a		0.3009	SRISO_SEP_PRECIP
	1.86E+03	RER	0.0			2.00E+00		(9.7)			L	GPC3B
Batch: 2275329	Work Order: E8P1A1AF			Report DB ID: E8P1A1FR		Orig Sa DB ID: 9E8P1A10						
H-3	4.01E+03		3.08E+02	3.47E+02	3.34E+02	pCi/L	100.00%	(12.)	11/12/02 04:27 p		0.01	906.0_H3_LSC
	4.12E+03	RER	0.5			4.00E+02		(23.1)			L	LSC3
Batch: 2275330	Work Order: E8P1A1AG			Report DB ID: E8P1A1GR		Orig Sa DB ID: 9E8P1A10						
BETA	3.46E+03		2.67E+01	4.89E+02	2.54E+00	pCi/L	100.00%	(1362.4)	11/7/02 06:17 p		0.2039	9310_ALPHABETA_G
	3.30E+03	RER	0.5			4.00E+00		(14.2)			L	GPC27A

Number of Results: 3

Comments:

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

rptSTLRchDupV3.9 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

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FORM II

BLANK RESULTS

Date: 13-Dec-02

Lab Name: STL Richland

SDG: W03857

Lot-Sample No.: J2J020000-328

Report No. : 21182

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2275328	Work Order:	E88491AA		Report DB ID:	E88491AB							
SR-90	2.56E-02	U	2.57E-01	2.57E-01	5.77E-01	pCi/L	66.77%	0.04	12/13/02 09:37 a		1.0009	SRISO_SEP_PRECIP
					2.58E-01	2.00E+00		0.2			L	GPC3C

Number of Results: 1

Comments:

10

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: 13-Dec-02

Lab Name: STL Richland

SDG: W03857

Lot-Sample No.: J2J020000-329

Report No. : 21182

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2275329	Work Order:	E885C1AA		Report DB ID:	E885C1AB							
H-3	9.97E+01	U	1.38E+02	1.48E+02	3.29E+02	pCi/L	100.00%	0.3	11/12/02 12:56 p		0.01	906.0_H3_LSC
					1.52E+02	4.00E+02		(1.3)			L	LSC3
Batch: 2275329	Work Order:	E885C1AD		Report DB ID:	E885C1DX							
H-3	-1.46E+01	U	1.31E+02	1.40E+02	3.30E+02	pCi/L	100.00%	-0.04	11/12/02 02:21 p		0.01	906.0_H3_LSC
					1.52E+02	4.00E+02		-0.21			L	LSC3

Number of Results: 2

Comments:

11

STL Richland
rptSTLRchBlank
V3.96 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: 13-Dec-02

Lab Name: STL Richland

SDG: W03857

Lot-Sample No.: J2J020000-330

Report No. : 21182

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2275330	Work Order:	E885G1AA		Report DB ID:	E885G1AB							
BETA	2.92E+00		1.35E+00	1.41E+00	2.49E+00	pCi/L	100.00%	(1.2)	11/7/02 06:17 p		0.1996	9310_ALPHABETA_G
					1.18E+00	4.00E+00		(4.1)			L	GPC28B

Number of Results: 1

Comments:

12

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

FORM II

Date: 13-Dec-02

LCS RESULTS

Lab Name: STL Richland

SDG: W03857

Lot-Sample No.: J2J020000-328

Report No. : 21182

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2275328	Work Order: E88491AC			Report DB ID: E88491CS									
SR-90	1.48E+01		1.20E+00	3.30E+00	6.23E-01	pCi/L	64.79%	1.38E+01	2.70E-01	107.63%	12/13/02 09:37 a	1.0	SRISO_SEP_PRECIP
							Rec Limits:	70.	130.	0.1		L	GPC3D

Number of Results: 1

Comments:

13

FORM II

LCS RESULTS

Date: 13-Dec-02

Lab Name: STL Richland

SDG: W03857

Lot-Sample No.: J2J020000-329

Report No. : 21182

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2275329	Work Order: E885C1AC			Report DB ID: E885C1CS									
H-3	3.03E+03		2.73E+02	3.02E+02	3.27E+02	pCi/L	100.00%	2.76E+03	8.29E+01	109.69%	11/12/02 01:38 p	0.01	906.0_H3_LSC
							Rec Limits:	70.	130.	0.1		L	LSC3
Batch: 2275329	Work Order: E885C1AE			Report DB ID: E885C1EM									
H-3	2.59E+03		2.58E+02	2.82E+02	3.30E+02	pCi/L	100.00%	2.76E+03	8.29E+01	93.68%	11/12/02 03:03 p	0.01	906.0_H3_LSC
							Rec Limits:	70.	130.	-0.1		L	LSC3

Number of Results: 2

Comments:

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

rptSTLRchLcs
V3.96 A97

FORM II

Date: 13-Dec-02

LCS RESULTS

Lab Name: STL Richland

SDG: W03857

Lot-Sample No.: J2J020000-330

Report No. : 21182

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2275330	Work Order: E885G1AC			Report DB ID: E885G1CS									
BETA	2.39E+01		2.48E+00	4.29E+00	2.54E+00	pCi/L	100.00%	2.25E+01	4.50E-01	106.01%	11/7/02 06:17 p	0.1996	9310_ALPHABETA_G
							Rec Limits:	70.	130.	0.1		L	GPC28D

Number of Results: 1

Comments:

15

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

rptSTLRchLcs
V3.96 A97

W-24-154

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C02-047-45

Page 1 of 1

Collector F. M. HALL	Contact/Requester SF TRENT	Telephone No. (509) 373-5869 MSIN FAX
SAF No. C02-047	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100 NR2 IAM GW MONITORING, SEPTEMBER 2002	Logbook No. DFSNW-SAWS-454	Ice Chest No. SMF 570 Temp.
Shipped To (Lab) Severn Trent Incorporated, Richland	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No.
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** SDG
W03857 J2I240123

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
FAX copies of STL log-in to SF Trent (373-5871) and DL Stewart (372-1704). Invoices & deliverables to SF Trent, FH.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B15740 (F)		W	9.23.02	1120	1x500-mL G/P	6010_METALS_ICP: List-1 (19) TO ST LOUIS	HNO3 to pH <2
B15741		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B15741		W			1x1000-mL P	906.0_H3_LSC: Tritium (1)	None
B15741		W			1x1000-mL P	9310_ALPHABETA_GPC: Gross Beta (1) E&PIA	HNO3 to pH <2
B15741		W			1x20-mL P	Activity Scan	None
B15741		W			3x1000-mL G/P	SRISO_SEP_PRECIP_GPC: Sr-90 (1)	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
F. M. HALL		SEP 23 2002	15:00 9/23/02	STL	A. Rhineheart	SEP 23 2002	15:00 9/23/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

SEVERN TRENT SERVICES

Sample Check-in List

Date/Time Received: 9/23/02 @15:00ar C02-047

Client: PGW SDG #: W03857 NA [ ] SAF #: S02-009 NA [ ]

Work Order Number: J2I240123 Chain of Custody # C02-047-45 S02-009, -2, -4, -19

Shipping Container ID: SML-137 Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [ ] No [X]
2. Custody Seals dated and signed? NA [ ] Yes [ ] No [X]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: 6°C NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 22
7. Sample holding times exceeded? NA [X] Yes [ ] No [ ]
8. Samples have:
   - X 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 [ ] pH<2 [X] pH>2 [ ]
11. Sample Location, Sample Collector Listed? * Yes [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: [illegible] / Ricklad Date: 9/23/02

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/01, Rev. 4

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2I240123
Client ID: FLH
Due Date: 11/14/2002
QC Batch Number: 2275330
Method Test Parameter: S8 GROSS BETA
Matrix: WATER
SDG Number: W63857

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: [signature] Date: 11/11/02

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

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2275330

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: [signature] Date: 11/11/02

ICOC Fraction Transfer/Status Report

ByDate: 10/12/02, 11/12/02, Batch: '2275330', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2275330						
AC		InStor	LEGLERM	11/5/02 2:46:13 PM		
SC			WagarR	IsBatched	10/2/02 3:18:25 PM	ICOC_RADCALC v4.5.3.2
SC			LEGLERM	InPrep	11/5/02 2:46:13 PM	RICH-RC-5014 Revision 3
SC			LEGLERM	Prep1C	11/7/02 1:57:18 PM	RICH-RC-5014 REVISION 3
SC			DAWKINSO	CalcC	11/11/02 8:57:50 AM	RICH-RD-0003 REVISION 3
SC			LEGLERM	InStor	11/11/02 1:19:33 PM	RICH-RC-5014 REVISION 3
AC			LEGLERM	11/7/02 1:57:18 PM		
AC			DAWKINSO	11/11/02 8:57:50 AM		
AC			LEGLERM	11/11/02 1:19:33 PM		

AC: Accepting Entry; SC: Status Change

11/5/02 2:52:33 PM

Sample Preparation/Analysis

Balance Id:1120482733, AB54-S

108302, FLUOR HANFORD IC
Management Federal Servi

, Waste

BC Gross Beta PrpRC5014
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Pipet #: 205

Report Due: 11/14/2002

Sep1 DT/Tm Tech: N/A

Sep2 DT/Tm Tech: N/A

Batch: 2275330 WATER pCi/L PM, Quote: BG1, 29754

SEQ Batch, Test: None

Prep Tech: LEGLERM, AL 11/7/02

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 E8P1A-1-AA J2I240123-1-SAMP		200.1g,in			1.5	24.7	100	26D	1905	11/7/2002
09/23/2002 11:20		AmtRec: 5XLP,20ML	#Containers: 6					Scr Rst:	Alpha: 4.02E+01 pCi/L	Beta: 1.18E+03 pCi/L
2 E8P1A-1-AG-X J2I240123-1-DUP		203.9g,in				22.9		27A	1905	11/7/2002
09/23/2002 11:20		AmtRec: 5XLP,20ML	#Containers: 6					Scr Rst:	Alpha: 4.02E+01 pCi/L	Beta: 1.18E+03 pCi/L
3 E885G-1-AA-B J2J020000-330-BLK		199.6g,in				0.2		28B	1905	11/7/2002
09/23/2002 11:20		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:
4 E885G-1-AC-C J2J020000-330-LCS		199.6g,in	BESB1378 08/23/02 05/22/02 r			0.8		28D	195	11/7/2002
09/23/2002 11:20		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:

Comments:

ph<2

All Clients for Batch:
108302, FLUOR HANFORD IC Waste Management Federal Servi, BG1, 29754

E8P1A1AA-SAMP Constituent List:

BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:
E885G1AA-BLK:					
BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:
E885G1AC-LCS:					
Sr-90	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

E8P1A1AA-SAMP Calc Info:

Sample Preparation/Analysis

Balance Id:1120482733

BC Gross Beta PrpRC5014
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 11/14/2002

Sep1 DT/Tm Tech:

Batch: 2275330 pCi/L

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,LEGLERM

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

```
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885G1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885G1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

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SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2I240123
Client ID: FLH
Due Date: 11/14/02
QC Batch Number: 2275379
Method Test Parameter: Sr 89
Matrix: Water
SDG Number: WU3857

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: 11-13-02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2275329

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: [signature] Date: 11/13/02

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

ICOC Fraction Transfer/Status Report

ByDate: 10/14/02, 11/14/02, Batch: '2275329', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2275329						
AC		CalcC	DAVIDSONP	11/11/02 3:41:23 PM		
SC			WagarR	IsBatched	10/2/02 3:18:25 PM	ICOC_RADCALC v4.5.3.2
SC			FABREM	InPrep	10/12/02 9:55:27 AM	RICH-RC-5007 REVISION 4
SC			DAVIDSONP	InPrep	11/11/02 3:41:23 PM	RICHRC5004 REVISION 1
SC			DAVIDSONP	Prep1C	11/11/02 3:41:55 PM	RICHRC5004 REVISION 1
SC			DAWKINSO	InCnt1	11/11/02 3:55:34 PM	RICH-RD-0001 REVISION 2
SC			BlackCL	CalcC	11/13/02 12:36:15 PM	RICH-RD-0001 REVISION 2
AC			DAVIDSONP	11/11/02 3:41:55 PM		
AC			DAWKINSO	11/11/02 3:55:34 PM		
AC			BlackCL	11/13/02 12:36:15 PM		

AC: Accepting Entry; SC: Status Change

10/2/2002 3:18:58 PM

Sample Preparation/Analysis

108302, FLUOR HANFORD IC Management Federal Servi , Waste

AR H-3 Prp/SepRC5007
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Report Due: 11/14/2002 W033857

Batch: 2275329 WATER pCi/L PM, Quote: BG1, 29754

SEQ Batch, Test: None

Balance Id: NA
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 E8P1A-1-AC J2I240123-1-SAMP								
09/23/2002 11:20		AmtRec: 5XLP,20ML	#Containers: 6		Scr Rst:	Alpha:	Beta:	
2 E8P1A-1-AF-X J2I240123-1-DUP								
09/23/2002 11:20		AmtRec: 5XLP,20ML	#Containers: 6		Scr Rst:	Alpha:	Beta:	
3 E885C-1-AA-B J2J020000-329-BLK								
09/23/2002 11:20		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
4 E885C-1-AC-C J2J020000-329-LCS								
09/23/2002 11:20		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 E885C-1-AD-BX J2J020000-329-MBLK								
09/23/2002 11:20		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 E885C-1-AE-CM J2J020000-329-MLCS								
09/23/2002 11:20		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
7 E885C-1-AF-BN J2J020000-329-IBLK								
09/23/2002 11:20		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

10/2/2002 3:18:58 PM

Sample Preparation/Analysis

AR H-3 Prp/SepRC5007
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

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

Report Due: 11/14/2002

Batch: 2275329 pCi/L

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
8 E885C-1-AG-BN								
J2J020000-329-IBLK								
09/23/2002 11:20	AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:	

Comments:

```
All Clients for Batch:
   108302, FLUOR HANFORD IC                    Waste Management Federal Servi,  BG1, 29754

E8P1A1AC-SAMP Constituent List:
  H-3          RDL:400          pCi/L     LCL:70       UCL:130      RPD:20
E885C1AA-BLK:
  H-3          RDL:400          pCi/L     LCL:         UCL:         RPD:
E885C1AC-LCS:
  H-3          RDL:400          pCi/L     LCL:70       UCL:130      RPD:20
E885C1AD-MBLK:
  H-3          RDL:400          pCi/L     LCL:         UCL:         RPD:
E885C1AE-MLCS:
  H-3          RDL:400          pCi/L     LCL:70       UCL:130      RPD:20
E885C1AF-IBLK:
  H-3          RDL:400          pCi/L     LCL:         UCL:         RPD:
E885C1AG-IBLK:
  H-3          RDL:400          pCi/L     LCL:         UCL:         RPD:

E8P1A1AC-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885C1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885C1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885C1AD-MBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885C1AE-MLCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885C1AF-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E885C1AG-IBLK:
```

10/2/2002 3:18:58 PM

Sample Preparation/Analysis

AR H-3 Prp/SepRC5007
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id:

Pipet #:

Report Due: 11/14/2002

Sep1 DT/Tm Tech:

Batch: 2275329 pCi/L

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

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

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SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2724023
Client ID: FLA
Due Date: 11/14/02
QC Batch Number: 2275328
Method Test Parameter: TL-SR90
Matrix: Water
SDG Number: WB857

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: 12-13-02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 227328

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: [signature] Date: 12/13/02

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

12/13/02 2:15:43 PM

ICOC Fraction Transfer/Status Report

ByDate: 11/13/02, 12/14/02, Batch: '2275328', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2275328						
AC		CalcC	SMITHP	11/25/02 10:20:41		
SC			WagarR	IsBatched	10/2/02 3:18:25 PM	ICOC_RADCALC v4.5.3.2
SC			SMITHP	InPrep	11/25/02 10:20:41 AM	RICH-RC-5006 REVISION 4
SC			SMITHP	Sep1C	11/27/02 8:29:16 AM	RICH-RC-5006 REVISION 4
SC			BlackCL	InCnt1	11/27/02 8:33:46 AM	RICH-RD-0007 REVISION 3
SC			ALMQUISTK	InSep2	12/10/02 5:10:28 PM	RICH-RC-5071 REVISION 2
SC			ALMQUISTK	Sep2C	12/11/02 1:55:54 PM	RICH-RC-5071 REVISION 2
SC			BlackCL	InCnt1	12/11/02 2:29:28 PM	RICH-RD-0003 REVISION 3
SC			BlackCL	CalcC	12/13/02 12:53:23 PM	RICH-RD-0003 REVISION 3
AC			SMITHP	11/27/02 8:29:16 AM		
AC			BlackCL	11/27/02 8:33:46 AM		
AC			ALMQUISTK	12/10/02 5:10:28 PM		
AC			ALMQUISTK	12/11/02 1:55:54 PM		
AC			BlackCL	12/11/02 2:29:28 PM		
AC			BlackCL	12/13/02 12:53:23 PM		

AC: Accepting Entry; SC: Status Change

10/10/02 4:46:36 PM

Sample Preparation/Analysis

108302, FLUOR HANFORD IC , Waste
Management Federal Servi

CL Sr-90 Prp/SepRC5006(5071)
TL Sr-85 by Nal and Sr-90 by GPC 7 day ingrowth
5I CLIENT: HANFORD

Report Due: 11/14/2002

Batch: 2275328 WATER pCi/L PM, Quote: BG1, 29754

SEQ Batch, Test: None

W03857

Balance Id: 12547
Pipet #:
Sep1 DT/Tm Tech: 11/26/02/1538/EPS
Sep2 DT/Tm Tech: 12-11-02 7:53am KA
Prep Tech: RW

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E8P1A-1-AD			SRTB6452								
J2I240123-1-SAMP		300.1	PR.11/21/02 EX.1/21/03		0.8398			30	3"	1219	11/27
			1.753E+3					100	3C	0944	12/2
			2.0875E+3	YTA7572 PR.11/14/02 EX.8/27/03		20.0			3A	1027	12/3
09/23/2002 11:20	(300 ml)		AmtRec: 5XLP,20ML	#Containers: 6		Scr Rst:	Alpha: 4.02E+01 pCi/L		Beta: 1.18E+03 pCi/L		
2 E8P1A-1-AE-X			SRTB6453								11/27/02
J2I240123-1-DUP		300.9	PR.11/21/02 EX.1/21/03		0.8616				3"	1251	
			1.783E+3						3D	0944	12/2
			2.0694E+3	YTA7573 PR.11/14/02 EX.8/27/03		20.1			3B	1027	12/3
09/23/2002 11:20	(300mL)		AmtRec: 5XLP,20ML	#Containers: 6		Scr Rst:	Alpha: 4.02E+01 pCi/L		Beta: 1.18E+03 pCi/L		
3 E8849-1-AA-B			SRTB6454								11/27/02
J2J020000-328-BLK		1000.9	PR.11/21/02 EX.1/21/03		0.8396				3"	1320	
			1.742E+3						3A	0944	12/2
			2.0747E+3	YTA7574 PR.11/14/02 EX.8/27/03		20.2			3C	1027	12/3
09/23/2002 11:20			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:		
4 E8849-1-AC-C			SRSG0647								11/27/02
J2J020000-328-LCS		1000.0	PR.10/22/02 EX.12/22/02		0.8439				3"	1402	
			PR 12-9-02 1.764E+3						3D	0944	12/2
			2.0904E+3	YTA7575 PR.11/14/02 EX.8/27/03		19.5			3D	1027	12/3
09/23/2002 11:20			AmtRec:	#Containers: 1		Scr Rst:	Alpha:		Beta:		

32

10/2/2002 3:18:58 PM

Sample Preparation/Analysis

CL Sr-90 Prp/SepRC5006(5071)
TL Sr-85 by NaI and Sr-90 by GPC 7 day ingrowth
5I CLIENT: HANFORD

Balance Id: 12547
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Report Due: 11/14/2002

Batch: 2275328 pCi/L

SEQ Batch, Test: None

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

Comments:

All Clients for Batch:
108302, FLUOR HANFORD IC Waste Management Federal Servi, BG1, 29754

E8P1A1AD-SAMP Constituent List:

Sr-85	RDL:	pCi/L	LCL:20	UCL:105	RPD:20	Sr-90	RDL:2	pCi/L	LCL:70	UCL:130	RPD:20

E88491AA-BLK:

Sr-85	RDL:	pCi/L	LCL:20	UCL:105	RPD:20	Sr-90	RDL:2	pCi/L	LCL:	UCL:	RPD:

E88491AC-LCS:

Sr-85	RDL:	pCi/L	LCL:20	UCL:105	RPD:20	Sr-90	RDL:2	pCi/L	LCL:70	UCL:130	RPD:20

E8P1A1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
E88491AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
E88491AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

SEVERN TRENT SERVICES

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

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

ANALYTICAL REPORT

PROJECT NO. 100NR2 IAM GW

C02-047

Lot #: F2I240232
SDG #: W03857

Steve Trent

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

OCT 2002
RECEIVED

SEVERN TRENT LABORATORIES, INC.

Mwards

MARTI WARD
Project Manager

October 1, 2002

SEVERN TRENT SERVICES

STL St. Louis

CASE NARRATIVE

Fluor Hanford
825 Jadwin Ave.
Richland, Washington 99352
October 2, 2002
Attention: Steve Trent

OCT 2002 RECEIVED

Project Number	:	49583
SDG	:	W03857
Number of Samples	:	two
SAF	:	C02-047
Sample Matrix	:	water
Data Deliverable	:	Summary
Date SDG Closed	:	September 30, 2002

II. Introduction

On September 23, 2002, two water samples were received by STL-St. Louis for chemical analysis. The sample was received at a temperature of 2 degrees C. Review the COC and CUR forms for any variations in sample temperature or condition when received at the lab. See the attached Sample Summary sheet for the client and lab Ids for these samples.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is incomplete without the Case Narrative. Samples are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see attached Methods Summary Sheet

Deviation from Request: none

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
MS- Matrix Spike
DUP- Matrix Duplicate
MSD- Matrix Spike Duplicate

SEVERN TRENT SERVICES

STL St. Louis

Fluor Hanford
October 2, 2002
Project Number: 49583
SDG: W03857
Page 2

V. Comments

General: The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

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

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

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

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

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

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

Reviewed and approved:

Marti Ward

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F2I240232

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E8Q58	001	B15740	09/23/02	11:20
E8Q6A	002	B15741	09/23/02	11:20

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

F2I240232

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Chloride	MCAWW 300.0A	MCAWW 300.0A
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

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

PSL20300
Page 1

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

Run Date: 9/24/02
Time: 13:44:38
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR2 IAM GW
REPORT TO: Steve Trent
P.O. NUMBER: MRC-SBB-A-19981
SITE: C02-047
AMOUNT REC"D: 500P
STORAGE LOC: METS
LOT COMMENTS: Batch Hanford samples by themselves
MATRIX: WATER
USAF MATRIX:
SAMPLE ID: B15740
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 49583
LAB ID: F-2I240232-001
WORK ORDER: E8Q58
RECEIVING DATE: 9/24/02
SAMPLING DATE: 9/23/02
ANALYTICAL DUE DATE: 10/25/02N
REPORT DUE DATE: 11/02/02
PRIORITY: 31
SAMPLING TIME: 11:20
RECEIVING TIME: 8:30

SDG# : W03857

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B)	06	9/24/02	0/00/00	3/22/03

METALS, FILTERED (DISS) -> TOTAL
M6010DS AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN
(I-55-Q0-5I) E8Q58 Protocol: A QC Program: CLIENT: HANFORD

PSL20300
Page 1

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

Run Date: 9/24/02
Time: 13:44:38
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR2 IAM GW
REPORT TO: Steve Trent
P.O. NUMBER: MRC-SBB-A-19981
SITE: C02-047
AMOUNT REC"D: 500P
STORAGE LOC: METS
LOT COMMENTS: Batch Hanford samples by themselves
MATRIX: WATER
USAF MATRIX:
SAMPLE ID: B15740
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 49583
LAB ID: F-2I240232-001-D
WORK ORDER: E8Q58 MSD
RECEIVING DATE: 9/24/02
SAMPLING DATE: 9/23/02
ANALYTICAL DUE DATE: 10/25/02N
REPORT DUE DATE: 11/02/02
PRIORITY: 31
SAMPLING TIME: 11:20
RECEIVING TIME: 8:30

SDG# : W03857

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B)	06	9/24/02	0/00/00	3/22/03

METALS, FILTERED (DISS) -> TOTAL
M6010DS AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN
(I-55-QO-5I) E8Q58 Protocol: A QC Program: CLIENT: HANFORD

PSL20300
Page 1

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

Run Date: 9/24/02
Time: 13:44:39
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR2 IAM GW
REPORT TO: Steve Trent
P.O. NUMBER: MRC-SBB-A-19981
SITE: C02-047
AMOUNT REC"D: 500P
STORAGE LOC: METS
LOT COMMENTS: Batch Hanford samples by themselves
MATRIX: WATER
USAF MATRIX:
SAMPLE ID: B15740
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 49583
LAB ID: F-2I240232-001-S
WORK ORDER: E8Q58 MS
RECEIVING DATE: 9/24/02
SAMPLING DATE: 9/23/02
ANALYTICAL DUE DATE: 10/25/02N
REPORT DUE DATE: 11/02/02
PRIORITY: 31
SAMPLING TIME: 11:20
RECEIVING TIME: 8:30

SDG# : W03857

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B)	06	9/24/02	0/00/00	3/22/03

METALS, FILTERED (DISS) -> TOTAL
M6010DS AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN
(I-55-QO-5I) E8Q58 Protocol: A QC Program: CLIENT: HANFORD

PSL20300
Page 1

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

Run Date: 9/24/02
Time: 13:44:39
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR2 IAM GW
REPORT TO: Steve Trent
P.O. NUMBER: MRC-SBB-A-19981
SITE: C02-047
AMOUNT REC"D: 500P,20ML
STORAGE LOC: T6
LOT COMMENTS: Batch Hanford samples by themselves
MATRIX: WATER
USAF MATRIX:
SAMPLE ID: B15741
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 49583
LAB ID: F-2I240232-002
WORK ORDER: E8Q6A
RECEIVING DATE: 9/24/02
SAMPLING DATE: 9/23/02
ANALYTICAL DUE DATE: 10/25/02N
REPORT DUE DATE: 11/02/02
PRIORITY: 31
SAMPLING TIME: 11:20
RECEIVING TIME: 8:30

SDG# : W03857

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
RAD SCREEN	06	9/24/02	0/00/00	9/23/02
IN-HOUSE RAD SCREEN				
(I-RA-ZV-01) E8Q6A-1-AA Protocol: A QC Program: STANDARD TEST SET				
Chloride (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CX-5I) E8Q6A-1-AC Protocol: A QC Program: CLIENT: HANFORD				
Fluoride (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-C8-5I) E8Q6A-1-AD Protocol: A QC Program: CLIENT: HANFORD				
Nitrate as N (300.0, Ion Chromatography)	06	9/24/02	0/00/00	9/25/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-C9-5I) E8Q6A-1-AE Protocol: A QC Program: CLIENT: HANFORD				
Nitrite as N (300.0, Ion Chromatography)	06	9/24/02	0/00/00	9/25/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-GO-5I) E8Q6A-1-AF Protocol: A QC Program: CLIENT: HANFORD				
Sulfate (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CY-5I) E8Q6A-1-AG Protocol: A QC Program: CLIENT: HANFORD				

PSL20300
Page 1

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

Run Date: 9/24/02
Time: 13:44:39
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR2 IAM GW
REPORT TO: Steve Trent
P.O. NUMBER: MRC-SBB-A-19981
SITE: C02-047
AMOUNT REC"D: 500P,20ML
STORAGE LOC: T6
LOT COMMENTS: Batch Hanford samples by themselves
MATRIX: WATER
USAF MATRIX:
SAMPLE ID: B15741
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 49583
LAB ID: F-2I240232-002-S
WORK ORDER: E8Q6A MS
RECEIVING DATE: 9/24/02
SAMPLING DATE: 9/23/02
ANALYTICAL DUE DATE: 10/25/02N
REPORT DUE DATE: 11/02/02
PRIORITY: 31
SAMPLING TIME: 11:20
RECEIVING TIME: 8:30

SDG# : W03857

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CX-5I) E8Q6A-1-AH Protocol: A QC Program: CLIENT: HANFORD				
Fluoride (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-C8-5I) E8Q6A-1-AJ Protocol: A QC Program: CLIENT: HANFORD				
Nitrate as N (300.0, Ion Chromatography)	06	9/24/02	0/00/00	9/25/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-C9-5I) E8Q6A-1-AK Protocol: A QC Program: CLIENT: HANFORD				
Nitrite as N (300.0, Ion Chromatography)	06	9/24/02	0/00/00	9/25/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-GO-5I) E8Q6A-1-AL Protocol: A QC Program: CLIENT: HANFORD				
Sulfate (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CY-5I) E8Q6A-1-AM Protocol: A QC Program: CLIENT: HANFORD				

PSL20300
Page 1

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

Run Date: 9/24/02
Time: 13:44:39
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR2 IAM GW
REPORT TO: Steve Trent
P.O. NUMBER: MRC-SBB-A-19981
SITE: C02-047
AMOUNT REC"D: 500P,20ML
STORAGE LOC: T6
LOT COMMENTS: Batch Hanford samples by themselves
MATRIX: WATER
USAF MATRIX:
SAMPLE ID: B15741 DUP
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 49583
LAB ID: F-2I240232-002-X
WORK ORDER: E8Q6A SMPDUP
RECEIVING DATE: 9/24/02
SAMPLING DATE: 9/23/02
ANALYTICAL DUE DATE: 10/25/02N
REPORT DUE DATE: 11/02/02
PRIORITY: 31
SAMPLING TIME: 11:20
RECEIVING TIME: 8:30

SDG# : W03857

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CX-5I) E8Q6A-1-AN Protocol: A QC Program: CLIENT: HANFORD				
Fluoride (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-C8-5I) E8Q6A-1-AP Protocol: A QC Program: CLIENT: HANFORD				
Nitrate as N (300.0, Ion Chromatography)	06	9/24/02	0/00/00	9/25/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-C9-5I) E8Q6A-1-AQ Protocol: A QC Program: CLIENT: HANFORD				
Nitrite as N (300.0, Ion Chromatography)	06	9/24/02	0/00/00	9/25/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-GO-5I) E8Q6A-1-AR Protocol: A QC Program: CLIENT: HANFORD				
Sulfate (300.0, Ion Chromatography)	06	9/24/02	0/00/00	10/21/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CY-5I) E8Q6A-1-AT Protocol: A QC Program: CLIENT: HANFORD				

LOT #F2I240233

STL St. Louis

PNNL W03857

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C02-047-45

Page 1 of 1

Collector F. M. HALL	Contact/Requester SF TRENT	Telephone No. (509) 373-5869 MSIN FAX
SAF No. C02-047	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100 NR2 IAM GW MONITORING, SEPTEMBER 2002	Logbook No. DFSNW-SAWS-454	Ice Chest No. SMF 570 Temp.
Shipped To (Lab) Severn Trent Incorporated, Richland	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No.
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
FAX copies of STL log-in to SF Trent (373-5871) and DL Stewart (372-1704). Invoices & deliverables to SF Trent, FH.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B15740 (F)		W	9-23-02	1120	1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2
B15741		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B15741		W			1x1000-mL P	906.0_H3_LSC: Tritium (1)	None
B15741		W			1x1000-mL P	9310_ALPHABETA_GPC: Gross Beta (1)	HNO3 to pH <2
B15741		W			1x20-mL P	Activity Scan	None
B15741		W			3x1000-mL G/P	SRISO_SEP_PRECIP_GPC: Sr-90 (1)	HNO3 to pH <2

Relinquished By	Received By
Print F. M. HALL Sign SEP 23 2002 Date/Time 9/23/02 15:00	Print SR A. Rhineheart Sign SEP 23 2002 Date/Time 9/23/02 15:00
Relinquished By SR A. Rhineheart Date/Time 9/23/02 15:00	Received By Melissa Zehner Melissa Zehner Date/Time 9/24/02 8:30
Relinquished By Date/Time	Received By Date/Time
Relinquished By Date/Time	Received By Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

W03857

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SEVERN TRENT SERVICES

Lot No.: F2I240232

W03857

Condition Upon Receipt Form
St. Louis Laboratory

Client: Hanford

Date: 9/24/02 Time: 8:30

Quote No: 49583

Initiated by: MMZ

Shipper/No: 7921 0807 4999

COC/RFA Numbers: W02-009-8, C02-047-45

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

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

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

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

Notes:

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

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

☐ Sample(s) processed "as is". _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: Melissa Johnson Date: 9/24/02

Project Management Review: M Ward Date: 9/25/02

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

METALS

BECHTEL HANFORD, INC.

Client Sample ID: B15740

DISSOLVED Metals

Lot-Sample #...: F2I240232-001 **Matrix.....:** WATER
Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2268420						
Potassium	**1480 B**	**5000**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AA**
		Dilution Factor: 1		MDL.....: 1330		
Sodium	**5870**	**5000**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AC**
		Dilution Factor: 1		MDL.....: 160		
Aluminum	ND	200	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AD
		Dilution Factor: 1		MDL.....: 17.0		
Antimony	ND	60.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AE
		Dilution Factor: 1		MDL.....: 29.5		
Barium	**36.7 B**	**200**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AF**
		Dilution Factor: 1		MDL.....: 8.2		
Beryllium	ND	5.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AG
		Dilution Factor: 1		MDL.....: 0.68		
Cadmium	ND	5.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AH
		Dilution Factor: 1		MDL.....: 2.5		
Calcium	**36200**	**5000**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AJ**
		Dilution Factor: 1		MDL.....: 378		
Chromium	ND	10.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AK
		Dilution Factor: 1		MDL.....: 3.4		
Cobalt	ND	50.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AL
		Dilution Factor: 1		MDL.....: 5.0		
Copper	**2.1 B**	**25.0**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AM**
		Dilution Factor: 1		MDL.....: 0.86		
Iron	**51.6 B**	**100**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AN**
		Dilution Factor: 1		MDL.....: 15.9		
Magnesium	**5980**	**5000**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AP**
		Dilution Factor: 1		MDL.....: 275		
Manganese	**2.4 B**	**15.0**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AQ**
		Dilution Factor: 1		MDL.....: 1.9		

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B15740

DISSOLVED Metals

Lot-Sample #...: F2I240232-001 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Nickel	ND	40.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AR
		Dilution Factor: 1		MDL.....: 15.8		
Silver	ND	10.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AT
		Dilution Factor: 1		MDL.....: 1.7		
Strontium	**134**	**50.0**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AU**
		Dilution Factor: 1		MDL.....: 2.3		
Vanadium	**13.9 B**	**20.0**	**ug/L**	**SW846 6010B**	**09/25-09/30/02**	**E8Q581AV**
		Dilution Factor: 1		MDL.....: 9.7		
Zinc	ND	20.0	ug/L	SW846 6010B	09/25-09/30/02	E8Q581AW
		Dilution Factor: 1		MDL.....: 2.2		

NOTE(S):

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER
Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F2I240232-001 **Prep Batch #...:** 2268420									
Potassium									
	1480	50000	49300	ug/L	96		SW846 6010B	09/25-09/30/02	E8Q581AX
	1480	50000	48700	ug/L	94	1.2	SW846 6010B	09/25-09/30/02	E8Q581A0
			Dilution Factor: 1						
Sodium									
	5870	50000	54600	ug/L	97		SW846 6010B	09/25-09/30/02	E8Q581A1
	5870	50000	53600	ug/L	95	1.9	SW846 6010B	09/25-09/30/02	E8Q581A2
			Dilution Factor: 1						
Aluminum									
	ND	2000	2010	ug/L	100		SW846 6010B	09/25-09/30/02	E8Q581A3
	ND	2000	1990	ug/L	100	0.74	SW846 6010B	09/25-09/30/02	E8Q581A4
			Dilution Factor: 1						
Antimony									
	ND	500	486	ug/L	97		SW846 6010B	09/25-09/30/02	E8Q581A5
	ND	500	491	ug/L	98	1.1	SW846 6010B	09/25-09/30/02	E8Q581A6
			Dilution Factor: 1						
Barium									
	36.7	2000	1910	ug/L	94		SW846 6010B	09/25-09/30/02	E8Q581A7
	36.7	2000	1900	ug/L	93	0.67	SW846 6010B	09/25-09/30/02	E8Q581A8
			Dilution Factor: 1						
Beryllium									
	ND	50.0	50.0	ug/L	100		SW846 6010B	09/25-09/30/02	E8Q581A9
	ND	50.0	49.4	ug/L	99	1.2	SW846 6010B	09/25-09/30/02	E8Q581CA
			Dilution Factor: 1						
Cadmium									
	ND	50.0	44.8	ug/L	90		SW846 6010B	09/25-09/30/02	E8Q581CC
	ND	50.0	45.3	ug/L	91	1.0	SW846 6010B	09/25-09/30/02	E8Q581CD
			Dilution Factor: 1						
Calcium									
	36200	50000	87000	ug/L	102		SW846 6010B	09/25-09/30/02	E8Q581CE
	36200	50000	86000	ug/L	100	1.2	SW846 6010B	09/25-09/30/02	E8Q581CF
			Dilution Factor: 1						

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MATRIX SPIKE SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER
Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium									
	ND	200	196	ug/L	98		SW846 6010B	09/25-09/30/02	E8Q581CG
	ND	200	193	ug/L	97	1.5	SW846 6010B	09/25-09/30/02	E8Q581CH
			Dilution Factor: 1						
Cobalt									
	ND	500	481	ug/L	96		SW846 6010B	09/25-09/30/02	E8Q581CJ
	ND	500	480	ug/L	96	0.31	SW846 6010B	09/25-09/30/02	E8Q581CK
			Dilution Factor: 1						
Copper									
	2.1	250	231	ug/L	92		SW846 6010B	09/25-09/30/02	E8Q581CL
	2.1	250	226	ug/L	90	2.1	SW846 6010B	09/25-09/30/02	E8Q581CM
			Dilution Factor: 1						
Iron									
	51.6	1000	1070	ug/L	102		SW846 6010B	09/25-09/30/02	E8Q581CN
	51.6	1000	1050	ug/L	100	1.4	SW846 6010B	09/25-09/30/02	E8Q581CP
			Dilution Factor: 1						
Magnesium									
	5980	50000	55100	ug/L	98		SW846 6010B	09/25-09/30/02	E8Q581CQ
	5980	50000	54200	ug/L	96	1.7	SW846 6010B	09/25-09/30/02	E8Q581CR
			Dilution Factor: 1						
Manganese									
	2.4	500	483	ug/L	96		SW846 6010B	09/25-09/30/02	E8Q581CT
	2.4	500	480	ug/L	95	0.77	SW846 6010B	09/25-09/30/02	E8Q581CU
			Dilution Factor: 1						
Nickel									
	ND	500	496	ug/L	99		SW846 6010B	09/25-09/30/02	E8Q581CV
	ND	500	483	ug/L	97	2.6	SW846 6010B	09/25-09/30/02	E8Q581CW
			Dilution Factor: 1						
Silver									
	ND	50.0	46.4	ug/L	93		SW846 6010B	09/25-09/30/02	E8Q581CX
	ND	50.0	45.8	ug/L	92	1.2	SW846 6010B	09/25-09/30/02	E8Q581C0
			Dilution Factor: 1						
Strontium									
	134	1000	1090	ug/L	96		SW846 6010B	09/25-09/30/02	E8Q581C1
	134	1000	1090	ug/L	95	0.57	SW846 6010B	09/25-09/30/02	E8Q581C2
			Dilution Factor: 1						

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MATRIX SPIKE SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER
Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium									
	13.9	500	508	ug/L	99		SW846 6010B	09/25-09/30/02	E8Q581C3
	13.9	500	500	ug/L	97	1.6	SW846 6010B	09/25-09/30/02	E8Q581C4
			Dilution Factor: 1						
Zinc									
	ND	500	503	ug/L	101		SW846 6010B	09/25-09/30/02	E8Q581C5
	ND	500	502	ug/L	100	0.27	SW846 6010B	09/25-09/30/02	E8Q581C6
			Dilution Factor: 1						

NOTE(S):

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

METHOD BLANK REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F2I250000-420 **Prep Batch #...:** 2268420						
Potassium	ND	5000	ug/L	SW846 6010B	09/25-09/30/02	E8T931AA
		Dilution Factor: 1				
Sodium	ND	5000	ug/L	SW846 6010B	09/25-09/30/02	E8T931AC
		Dilution Factor: 1				
Aluminum	ND	200	ug/L	SW846 6010B	09/25-09/30/02	E8T931AD
		Dilution Factor: 1				
Antimony	ND	60.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AE
		Dilution Factor: 1				
Barium	ND	200	ug/L	SW846 6010B	09/25-09/30/02	E8T931AF
		Dilution Factor: 1				
Beryllium	ND	5.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AG
		Dilution Factor: 1				
Cadmium	ND	5.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AH
		Dilution Factor: 1				
Calcium	ND	5000	ug/L	SW846 6010B	09/25-09/30/02	E8T931AJ
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AK
		Dilution Factor: 1				
Cobalt	ND	50.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AL
		Dilution Factor: 1				
Copper	ND	25.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AM
		Dilution Factor: 1				
Iron	ND	100	ug/L	SW846 6010B	09/25-09/30/02	E8T931AN
		Dilution Factor: 1				
Magnesium	ND	5000	ug/L	SW846 6010B	09/25-09/30/02	E8T931AP
		Dilution Factor: 1				
Manganese	ND	15.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AQ
		Dilution Factor: 1				
Nickel	ND	40.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AR
		Dilution Factor: 1				

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METHOD BLANK REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	10.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AT
		Dilution Factor: 1				
Strontium	ND	50.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AU
		Dilution Factor: 1				
Vanadium	ND	20.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AV
		Dilution Factor: 1				
Zinc	ND	20.0	ug/L	SW846 6010B	09/25-09/30/02	E8T931AW
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F2I250000-420 **Prep Batch #...:** 2268420							
Potassium	20000	19000	ug/L	95	SW846 6010B	09/25-09/30/02	E8T931AX
			Dilution Factor: 1				
Sodium	20000	19500	ug/L	97	SW846 6010B	09/25-09/30/02	E8T931A0
			Dilution Factor: 1				
Aluminum	1000	1010	ug/L	101	SW846 6010B	09/25-09/30/02	E8T931A1
			Dilution Factor: 1				
Antimony	1000	1050	ug/L	105	SW846 6010B	09/25-09/30/02	E8T931A2
			Dilution Factor: 1				
Barium	1000	955	ug/L	96	SW846 6010B	09/25-09/30/02	E8T931A3
			Dilution Factor: 1				
Beryllium	1000	956	ug/L	96	SW846 6010B	09/25-09/30/02	E8T931A4
			Dilution Factor: 1				
Cadmium	1000	1050	ug/L	105	SW846 6010B	09/25-09/30/02	E8T931A5
			Dilution Factor: 1				
Calcium	20000	21100	ug/L	106	SW846 6010B	09/25-09/30/02	E8T931A6
			Dilution Factor: 1				
Chromium	1000	1020	ug/L	102	SW846 6010B	09/25-09/30/02	E8T931A7
			Dilution Factor: 1				
Cobalt	1000	1010	ug/L	101	SW846 6010B	09/25-09/30/02	E8T931A8
			Dilution Factor: 1				
Copper	1000	961	ug/L	96	SW846 6010B	09/25-09/30/02	E8T931A9
			Dilution Factor: 1				
Iron	1000	1080	ug/L	108	SW846 6010B	09/25-09/30/02	E8T931CA
			Dilution Factor: 1				
Magnesium	20000	20300	ug/L	102	SW846 6010B	09/25-09/30/02	E8T931CC
			Dilution Factor: 1				
Manganese	1000	993	ug/L	99	SW846 6010B	09/25-09/30/02	E8T931CD
			Dilution Factor: 1				

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LABORATORY CONTROL SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: F2I240232 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Nickel	1000	1040	ug/L	104	SW846 6010B	09/25-09/30/02	E8T931CE
			Dilution Factor: 1				
Silver	250	250	ug/L	100	SW846 6010B	09/25-09/30/02	E8T931CF
			Dilution Factor: 1				
Strontium	1000	987	ug/L	99	SW846 6010B	09/25-09/30/02	E8T931CG
			Dilution Factor: 1				
Vanadium	1000	1020	ug/L	102	SW846 6010B	09/25-09/30/02	E8T931CH
			Dilution Factor: 1				
Zinc	1000	1030	ug/L	103	SW846 6010B	09/25-09/30/02	E8T931CJ
			Dilution Factor: 1				

NOTE(S):

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

WET CHEMISTRY

BECHTEL HANFORD, INC.

Client Sample ID: B15741

General Chemistry

Lot-Sample #...: F2I240232-002 **Work Order #...:** E8Q6A **Matrix.....:** WATER
Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	2.3 C	0.20	mg/L	MCAWW 300.0A	09/24/02	2267506
		Dilution Factor: 1		MDL.....: 0.029		
Fluoride	0.066 B	0.10	mg/L	MCAWW 300.0A	09/24/02	2267507
		Dilution Factor: 1		MDL.....: 0.031		
Nitrate	6.1	0.40	mg/L	MCAWW 300.0A	09/24/02	2267508
		Dilution Factor: 20		MDL.....: 0.0044		
Nitrite	ND	0.020	mg/L	MCAWW 300.0A	09/24/02	2267509
		Dilution Factor: 1		MDL.....: 0.011		
Sulfate	16.5	0.50	mg/L	MCAWW 300.0A	09/24/02	2267510
		Dilution Factor: 1		MDL.....: 0.037		

NOTE(S):

RL Reporting Limit

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

B Estimated result. Result is less than RL.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F2I240232 **Work Order #...:** E8Q6A-SMP E8Q6A-DUP **Matrix.....:** WATER

Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	F2I240232-002	
	2.3 C	2.3	mg/L	0.74	(0-20)	MCAWW 300.0A	09/24/02	2267506
			Dilution Factor: 1					
Fluoride						SD Lot-Sample #:	F2I240232-002	
	0.066 B	0.081 B	mg/L	21	(0-15)	MCAWW 300.0A	09/24/02	2267507
			Dilution Factor: 1					
Nitrate						SD Lot-Sample #:	F2I240232-002	
	6.1	6.3	mg/L	3.4	(0-15)	MCAWW 300.0A	09/24/02	2267508
			Dilution Factor: 20					
Nitrite						SD Lot-Sample #:	F2I240232-002	
	ND	ND	mg/L	0	(0-42)	MCAWW 300.0A	09/24/02	2267509
			Dilution Factor: 1					
Sulfate						SD Lot-Sample #:	F2I240232-002	
	16.5	16.4	mg/L	0.91	(0-22)	MCAWW 300.0A	09/24/02	2267510
			Dilution Factor: 1					

NOTE(S):

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

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

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F2I240232 **Matrix.....:** WATER
Date Sampled...: 09/23/02 **Date Received..:** 09/24/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			Work Order #...:		E8Q6A1AH	MS Lot-Sample #:		F2I240232-002
	2.3	2.00	4.45	mg/L	108	MCAWW 300.0A	09/24/02	2267506
			Dilution Factor: 1					
Fluoride			Work Order #...:		E8Q6A1AJ	MS Lot-Sample #:		F2I240232-002
	0.066	2.00	2.24	mg/L	109	MCAWW 300.0A	09/24/02	2267507
			Dilution Factor: 1					
Nitrate			Work Order #...:		E8Q6A1AK	MS Lot-Sample #:		F2I240232-002
	6.1	8.00	14.7	mg/L	108	MCAWW 300.0A	09/24/02	2267508
			Dilution Factor: 20					
Nitrite			Work Order #...:		E8Q6A1AL	MS Lot-Sample #:		F2I240232-002
	ND	0.100	0.0943	mg/L	94	MCAWW 300.0A	09/24/02	2267509
			Dilution Factor: 1					
Sulfate			Work Order #...:		E8Q6A1AM	MS Lot-Sample #:		F2I240232-002
	16.5	4.00	20.5	mg/L	99	MCAWW 300.0A	09/24/02	2267510
			Dilution Factor: 1					

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F2I240232 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: E8TMT1AA		MB Lot-Sample #:	F2I240000-506	
	0.039 B	**0.20**	**mg/L**	**MCAWW 300.0A**	**09/24/02**	**2267506**
		Dilution Factor: 1				
Fluoride		Work Order #: E8TMX1AA		MB Lot-Sample #:	F2I240000-507	
	ND	0.10	mg/L	MCAWW 300.0A	09/24/02	2267507
		Dilution Factor: 1				
Nitrate		Work Order #: E8TM31AA		MB Lot-Sample #:	F2I240000-508	
	ND	0.020	mg/L	MCAWW 300.0A	09/24/02	2267508
		Dilution Factor: 1				
Nitrite		Work Order #: E8TM51AA		MB Lot-Sample #:	F2I240000-509	
	ND	0.020	mg/L	MCAWW 300.0A	09/24/02	2267509
		Dilution Factor: 1				
Sulfate		Work Order #: E8TM71AA		MB Lot-Sample #:	F2I240000-510	
	ND	0.50	mg/L	MCAWW 300.0A	09/24/02	2267510
		Dilution Factor: 1				

NOTE(S):

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F2I240232 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:E8TMT1AC-LCS/E8TMT1AD-LCSD				LCS Lot-Sample#: F2I240000-506		
	1.00	0.932	mg/L	93		MCAWW 300.0A	09/24/02	2267506
	1.00	0.956	mg/L	96	2.5	MCAWW 300.0A	09/24/02	2267506
		Dilution Factor: 1						
Fluoride		WO#:E8TMX1AC-LCS/E8TMX1AD-LCSD				LCS Lot-Sample#: F2I240000-507		
	0.500	0.471	mg/L	94		MCAWW 300.0A	09/24/02	2267507
	0.500	0.470	mg/L	94	0.33	MCAWW 300.0A	09/24/02	2267507
		Dilution Factor: 1						
Nitrate		WO#:E8TM31AC-LCS/E8TM31AD-LCSD				LCS Lot-Sample#: F2I240000-508		
	0.200	0.181	mg/L	91		MCAWW 300.0A	09/24/02	2267508
	0.200	0.181	mg/L	91	0.03	MCAWW 300.0A	09/24/02	2267508
		Dilution Factor: 1						
Nitrite		WO#:E8TM51AC-LCS/E8TM51AD-LCSD				LCS Lot-Sample#: F2I240000-509		
	0.0800	0.0739	mg/L	92		MCAWW 300.0A	09/24/02	2267509
	0.0800	0.0750	mg/L	94	1.6	MCAWW 300.0A	09/24/02	2267509
		Dilution Factor: 1						
Sulfate		WO#:E8TM71AC-LCS/E8TM71AD-LCSD				LCS Lot-Sample#: F2I240000-510		
	4.00	3.61	mg/L	90		MCAWW 300.0A	09/24/02	2267510
	4.00	3.60	mg/L	90	0.35	MCAWW 300.0A	09/24/02	2267510
		Dilution Factor: 1						

NOTE(S):

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