0076504

SEVERN TRENT STL

STL Richland
2800 George Washington Way
Richland, WA 99354

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

March 23, 2007

Leasa Hetzer
2430 Stevens Drive
Richland, WA 99354

Reference: Contract 615

Dear Ms. Hetzer:

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

SDG NUMBER	SAF NUMBER
F07-012	W05116
F07-015	W05118
R06-001	W05133

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

Receipt of this letter and the packages are acknowledged by:

RAHolle 3/26/07

Name Date

XC: File

MAR 2007 RECEIVED

RECEIVED MAR 21 2008 EDMC

W05116

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ICOC 52

MAR 2007
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Analytical Data Package Prepared For

Fluor Hanford Inc.

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains _____ Pages

Report No.: 34747

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W05116	F07-012	B1LMW0	J7B080130-1	JN4WD1AD	9JN4WD10	7039294
		B1LMW0	J7B080130-1	JN4WD1AF	9JN4WD10	7043484
		B1LMW0	J7B080130-1	JN4WD1AC	9JN4WD10	7043485
		B1LMW0	J7B080130-1	JN4WD1AE	9JN4WD10	7043486
		B1LMW0	J7B080130-1	JN4WD1AA	9JN4WD10	7043489

MAR 2007
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STL Richland
2800 George Washington Way
Richland, WA 99354

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

March 22, 2007

Attention: Steve Trent

SAF Number	:	F07-012
Date SDG Closed	:	February 7, 2007
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W05116
Data Deliverable	:	45/45 Day

CASE NARRATIVE

I. Introduction

On February 7, 2007 one sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned to lot J7B080130 and assigned the following laboratory ID number to correspond with the Fluor Hanford (FH) specific ID:

FH ID#	STLR ID#	MATRIX	DATE OF RECEIPT
B1LMW0	JN4WD	WATER	2/7/07

II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

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 analyses were:

Gas Proportional Counting
Gross Alpha by method RICH-RC-5014
Gross Beta by method RICH-RC-5014
Liquid Scintillation Counting

Carbon-14 by method RICH-RC-5022
Tritium by method RICH-RC-500
Chemical Analysis
Hexavalent Chromium by EPA method 7196A

IV. Quality Control

The analytical results for each analysis performed 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

Gas Proportional Counting
Gross Alpha by method RICH-RC-5014:
The LCS, batch blank, sample and sample duplicate (B1LMW0) results are within contractual requirements.

Gross Beta by method RICH-RC-5014:
The LCS, batch blank, sample and sample duplicate (B1LMW0) results are within contractual requirements.

Liquid Scintillation Counting
Carbon-14 by method RICH-RC-5022:
The LCS, batch blank, samples and sample duplicate (B1LMW0) results are within contractual requirements.

Tritium by method RICH-RC-5007:
The LCS, batch blank, samples and sample duplicate (B1LMW0) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, samples, sample duplicate (B1LMW0), sample matrix spike (B1LMW0), and matrix spike duplicate results (B1LMW0) are within contractual requirements.

March 22, 2007

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:

Sherryl A. Adam
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: 22-Mar-07

Report No. : 34747

SDG No: W05116

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RPD
B1LMW0	JN4WD1AD	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A	2.00E-03	
B1LMW0	JN4WD1AF	C-14	3.82E+01 +- 1.82E+01		pCi/L	100%	1.69E+01	
B1LMW0	JN4WD1AC	H-3	8.49E+01 +- 1.42E+02	U	pCi/L	100%	3.01E+02	
B1LMW0	JN4WD1AE	ALPHA	8.17E-01 +- 1.07E+00	U	pCi/L	100%	2.14E+00	
B1LMW0	JN4WD1AA	BETA	2.37E+00 +- 1.40E+00	U	pCi/L	100%	2.54E+00	
B1LMW0 DUP	JN4WD1AE	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A	2.00E-03	0.0
B1LMW0 DUP	JN4WD1AN	C-14	3.37E+01 +- 1.77E+01		pCi/L	100%	1.69E+01	12.4
B1LMW0 DUP	JN4WD1AP	H-3	1.57E+02 +- 1.45E+02	U	pCi/L	100%	3.01E+02	59.3
B1LMW0 DUP	JN4WD1AQ	ALPHA	6.29E-01 +- 7.76E-01	U	pCi/L	100%	1.36E+00	25.9
B1LMW0 DUP	JN4WD1AR	BETA	3.23E+00 +- 1.51E+00		pCi/L	100%	2.65E+00	30.6

Number of Results: 10

STL Richland

rptSTLRchSaSum
V5.1 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 22-Mar-07

Report No. : 34747

SDG No.: W05116

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
MATRIX SPIK	JN4WD1AC	HEXCHROME	2.69E-01 +- 0.00E+00		mg/L	N/A			2.00E-03
MATRIX SPIK	JN4WD1AD	HEXCHROME	2.70E-01 +- 0.00E+00		mg/L	N/A			2.00E-03
BLANK QC	JN48G1AA	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A			2.00E-03
BLANK QC	JPA2T1AA	C-14	-2.93E-01 +- 7.09E+00	U	pCi/L	100%			8.45E+00
BLANK QC	JPA2V1AA	H-3	5.10E+01 +- 1.40E+02	U	pCi/L	100%			2.99E+02
BLANK QC	JPA2V1AD	H-3	1.44E+01 +- 1.39E+02	U	pCi/L	100%			3.03E+02
BLANK QC	JPA2W1AA	ALPHA	0.00E+00 +- 4.20E-01	U	pCi/L	100%			1.24E+00
BLANK QC	JPA221AA	BETA	2.26E+00 +- 1.33E+00	U	pCi/L	100%			2.49E+00
LCS	JN48G1AC	HEXCHROME	5.13E-01 +- 0.00E+00		mg/L	N/A			2.00E-03
LCS	JPA2T1AC	C-14	1.74E+02 +- 2.62E+01		pCi/L	100%	97%	0.0	8.44E+00
LCS	JPA2V1AC	H-3	2.35E+03 +- 2.36E+02		pCi/L	100%	86%	-0.1	2.99E+02
LCS	JPA2V1AE	H-3	2.45E+03 +- 2.43E+02		pCi/L	100%	90%	-0.1	3.04E+02
LCS	JPA2W1AC	ALPHA	2.35E+01 +- 4.71E+00		pCi/L	100%	102%	0.0	1.07E+00
LCS	JPA221AC	BETA	2.26E+01 +- 4.65E+00		pCi/L	100%	101%	0.0	2.80E+00

Number of Results: 14

STL Richland
rptSTLRchQcSum
V5.1 A2002

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

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 22-Mar-07

Lab Name:	STL Richland	SDG:	W05116	Collection Date:	2/7/2007 9:12:00 AM
Lot-Sample No.:	J7B080130-1	Report No. :	34747	Received Date:	2/7/2007 2:20:00 PM
Client Sample ID:	B1LMW0	COC No. :	F07-012-104	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: 7039294	Work Order: JN4WD1AD			Report DB ID: 9JN4WD10								
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	2/8/07 08:00 a		100.0	7196_CR6
								N/A			ML	
Batch: 7043484	Work Order: JN4WD1AF			Report DB ID: 9JN4WD10								
C-14	3.82E+01		8.2E+00	1.8E+01	1.69E+01	pCi/L	100%	(2.3)	2/20/07 06:36 a		0.1	C14_LSC
						8.10E+00	2.00E+02	(4.2)			L	LSC3
Batch: 7043485	Work Order: JN4WD1AC			Report DB ID: 9JN4WD10								
H-3	8.49E+01	U	1.3E+02	1.4E+02	3.01E+02	pCi/L	100%	0.28	3/10/07 08:45 p		0.005	906.0_H3_LSC
						1.43E+02	4.00E+02	(1.2)			L	LSC8
Batch: 7043486	Work Order: JN4WD1AE			Report DB ID: 9JN4WD10								
ALPHA	8.17E-01	U	1.1E+00	1.1E+00	2.14E+00	pCi/L	100%	0.38	3/9/07 04:16 p		0.199	RICHRC5014
						8.50E-01	3.00E+00	(1.5)			L	GPC12C
Batch: 7043489	Work Order: JN4WD1AA			Report DB ID: 9JN4WD10								
BETA	2.37E+00	U	1.3E+00	1.4E+00	2.54E+00	pCi/L	100%	0.93	3/9/07 02:37 p		0.2012	9310_ALPHABETA_(
						1.21E+00	4.00E+00	(3.4)			L	GPC32A

Number of Results: 5

Comments:

STL Richland
rptSTLRchSample
V5.1 A2002

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 not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

Date: 22-Mar-07

DUPLICATE RESULTS

Lab Name:	STL Richland	SDG:	W05116	Collection Date:	2/7/2007 9:12:00 AM
Lot-Sample No.:	J7B080130-1	Report No. :	34747	Received Date:	2/7/2007 2:20:00 PM
Client Sample ID:	B1LMW0 DUP	COC No. :	F07-012-104	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: 7039294	Work Order: JN4WD1AE			Report DB ID: JN4WD1NR		Orig Sa DB ID: 9JN4WD10						
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	2/8/07 08:00 a		100.0	7196_CR6
	2.00E-03	U	RPD 0.0					N/A			ML	
Batch: 7043464	Work Order: JN4WD1AN			Report DB ID: JN4WD1NR		Orig Sa DB ID: 9JN4WD10						
C-14	3.37E+01		8.1E+00	1.8E+01	1.69E+01	pCi/L	100%	(2.)	2/20/07 07:50 a		0.1	C14_LSC
	3.82E+01		RPD 12.4			2.00E+02		(3.8)			L	LSC3
Batch: 7043465	Work Order: JN4WD1AP			Report DB ID: JN4WD1PR		Orig Sa DB ID: 9JN4WD10						
H-3	1.57E+02	U	1.3E+02	1.5E+02	3.01E+02	pCi/L	100%	0.52	3/10/07 10:06 p		0.005	906.0_H3_LSC
	8.49E+01	U	RPD 59.3			4.00E+02		(2.2)			L	LSC8
Batch: 7043486	Work Order: JN4WD1AQ			Report DB ID: JN4WD1QR		Orig Sa DB ID: 9JN4WD10						
ALPHA	6.29E-01	U	7.7E-01	7.8E-01	1.36E+00	pCi/L	100%	0.46	3/9/07 04:16 p		0.1995	RICHRC5014
	8.17E-01	U	RPD 25.9			3.00E+00		(1.6)			L	GPC12D
Batch: 7043489	Work Order: JN4WD1AR			Report DB ID: JN4WD1RR		Orig Sa DB ID: 9JN4WD10						
BETA	3.23E+00		1.4E+00	1.5E+00	2.65E+00	pCi/L	100%	(1.2)	3/9/07 02:37 p		0.2067	9310_ALPHABETA_
	2.37E+00	U	RPD 30.6			4.00E+00		(4.3)			L	GPC32B

Number of Results: 5

Comments:

STL Richland
rptSTLRchDupV5.1
A2002

RPD - Relative Percent Difference.
MDC|MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 22-Mar-07

Lab Name: STL Richland SDG: W05116

Lot-Sample No.: #Error Report No. : 34747 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: 7039294	Work Order: JN48G1AA			Report DB ID: JN48GAB								
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1. N/A	1/8/07 08:00 a		100.0 ML	7196_CR6

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

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 not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: J7B120000-484

Report No. : 34747

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: 7043484	Work Order: JPA2T1AA			Report DB ID: JPA2T1AB								
C-14	-2.93E-01	U	3.5E+00	7.1E+00	8.45E+00	pCi/L	100%	-0.03	2/20/07 05:08 a		0.2	C14_LSC
					4.05E+00	2.00E+02		-0.08			L	LSC3

Number of Results: 1

Comments:

STL Richland
rptSTLRichBlank
V5.1 A2002

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 not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 22-Mar-07

Lab Name: STL Richland SDG: W05116

Lot-Sample No.: J7B120000-485 Report No. : 34747 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: 7043485	Work Order:	JPA2V1AA		Report DB ID:	JPA2V1AB							
H-3	5.10E+01	U	1.2E+02	1.4E+02	2.99E+02	pCi/L	100%	0.17	3/10/07 03:18 p		0.005	906.0_H3_LSC
					1.43E+02	4.00E+02		0.73			L	LSC8
Batch: 7043485	Work Order:	JPA2V1AD		Report DB ID:	JPA2V1DX							
H-3	1.44E+01	U	1.2E+02	1.4E+02	3.03E+02	pCi/L	100%	0.05	3/10/07 06:01 p		0.005	906.0_H3_LSC
					1.45E+02	4.00E+02		0.21			L	LSC8

Number of Results: 2

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

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 not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: J7B120000-486

Report No. : 34747

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: 7043486	Work Order: JPA2W1AA			Report DB ID: JPA2W1AB								
ALPHA	0.00E+00	U	0.0E+00	4.2E-01	1.24E+00	pCi/L	100%	0.	3/9/07 05:20 p		0.2013	RICHRC5014
					4.65E-01	3.00E+00		0.			L	GPC12B

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

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 not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: J7B120000-489

Report No. : 34747

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: 7043489	Work Order:	JPA221AA		Report DB ID:	JPA221AB							
BETA	2.26E+00	U	1.3E+00	1.3E+00	2.49E+00	pCi/L	100%	0.91	3/9/07 02:37 p		0.1994	9310_ALPHABETA_(
					1.18E+00	4.00E+00		(3.4)			L	GPC32C

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.1 A2002

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 not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: #Error

Report No. : 34747

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: 7039294	Work Order: JN48G1AC			Report DB ID: JN48GAC									
HEXCHROME	5.13E-01			0.0E+00	2.00E-03	mg/L	N/A	0.00E+00		#Div/01	1/8/07 08:00 a	100.0	7196_CR6
							Rec Limits:	85.	115.			ML	

Number of Results: 1

Comments:

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

rptSTLRchLcs
V5.1 A2002

FORM II

LCS RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: J7B120000-484

Report No. : 34747

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: 7043464	Work Order: JPA2T1AC			Report DB ID: JPA2T1CS									
C-14	1.74E+02		7.5E+00	2.6E+01	8.44E+00	pCi/L	100.00%	1.80E+02	5.81E+00	97%	2/20/07 05:51 a	0.2	C14_LSC
							Rec Limits:	70.	130.	0.0		L	LSC3

Number of Results: 1

Comments:

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

rptSTLRchLcs
V5.1 A2002

FORM II

LCS RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: J7B120000-485

Report No. : 34747

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: 7043485	Work Order: JPA2V1AC			Report DB ID: JPA2V1CS									
H-3	2.35E+03		2.0E+02	2.4E+02	2.99E+02	pCi/L	100.00%	2.72E+03	8.16E+01	86%	3/10/07 04:39 p	0.005	906.0_H3_LSC
							Rec Limits:	70.	130.	-0.1		L	LSC8
Batch: 7043485	Work Order: JPA2V1AE			Report DB ID: JPA2V1EM									
H-3	2.45E+03		2.0E+02	2.4E+02	3.04E+02	pCi/L	100.00%	2.72E+03	8.16E+01	90%	3/10/07 07:23 p	0.005	906.0_H3_LSC
							Rec Limits:	70.	130.	-0.1		L	LSC8

Number of Results: 2

Comments:

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

rptSTLRchLcs
V5.1 A2002

STL RICHLAND

FORM II

LCS RESULTS

Date: 22-Mar-07

Lab Name: STL Richland **SDG:** W05116

Lot-Sample No.: J7B120000-486 **Report No. :** 34747 **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: 7043486	Work Order: JPA2W1AC			Report DB ID: JPA2W1CS									
ALPHA	2.35E+01		3.3E+00	4.7E+00	1.07E+00	pCi/L	100.00%	2.30E+01	7.21E-01	102%	3/9/07 05:20 p	0.1999	RICHRC5014
							Rec Limits:			0.0		L	GPC12A

Number of Results: 1

Comments:

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

rptSTLRichLcs
V5.1 A2002

FORM II

LCS RESULTS

Date: 22-Mar-07

Lab Name: STL Richland

SDG: W05116

Lot-Sample No.: J7B120000-489

Report No. : 34747

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: 7043489	Work Order: JPA221AC			Report DB ID: JPA221CS									
BETA	2.26E+01		2.5E+00	4.7E+00	2.80E+00	pCi/L	100.00%	2.25E+01	2.60E-01	101%	3/9/07 02:37 p	0.2011	9310_ALPHABETA_
							Rec Limits:			0.0		L	GPC32D

Number of Results: 1

Comments:

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

rptSTLRichLcs
V5.1 A2002

STL RICHLAND

FORM II

MATRIX SPIKE RESULTS

Date: 22-Mar-07

Lab Name: STL Richland SDG: W05116

Lot-Sample No.: J7B080130-1 Report No. : 34747 Matrix: WATER

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7039294	Work Order:	JN4WD1AC		Report DB ID:	JN4WDCW		Orig Sa DB ID:	9JN4WD10					
HEXCHROME	2.69E-01			0.0E+00	2.00E-03	mg/L	N/A		0.00E+00		2/8/07 08:00 a	100.0	7196_CR6
	2.00E-03											ML	

Number of Results: 1

Comments:

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

rptSTLRchMs V5.1 Bias - (Result/Expected)-1 as defined by ANSI N13.30.

A2002

FormNi	FormS	Fieldi	FormatTi	Versid	SampleNbr	Contract	LabCode	LabQ	CaseN	SAS	SDGNbr
W	AA	H	FEAD	05	B1LMW0	MW6-SBB-A19981	STLRL				W05116
W	AB	H	FEAD	05	NA	MW6-SBB-A19981	STLRL				W05116
W	AC	H	FEAD	05	NA	MW6-SBB-A19981	STLRL				W05116
W	AD	H	FEAD	05	B1LMW0 DUP	MW6-SBB-A19981	STLRL				W05116
W	AE	H	FEAD	05	B1LMW0	MW6-SBB-A19981	STLRL				W05116
W	AF	H	FEAD	05	B1LMW0	MW6-SBB-A19981	STLRL				W05116

AnalyticalMatrix	LabReceivedDate	CollectedDate	PercentSolDecants	LabSampleId	LabFlex	SdNbr
WATER	02/07/2007	02/07/2007		9JN4WD10		F07-012
WATER	02/08/2007			JN48GAB		F07-012
WATER	02/08/2007			JN48GAC		F07-012
WATER	02/07/2007	02/07/2007		JN4WD1NR		F07-012
WATER	02/07/2007	02/07/2007		JN4WDCW		F07-012
WATER	02/07/2007	02/07/2007		JN4WDDW		F07-012

CollectedTime	PercentM	Filename	SpecificMe
09:12		h:\Reportdb\edd\FeadIV\Wet\W0511	
		h:\Reportdb\edd\FeadIV\Wet\W0511	
		h:\Reportdb\edd\FeadIV\Wet\W0511	
09:12		h:\Reportdb\edd\FeadIV\Wet\W0511	
09:12		h:\Reportdb\edd\FeadIV\Wet\W0511	
09:12		h:\Reportdb\edd\FeadIV\Wet\W0511	

FormNbr	FormSufftx	RecordType	CASNbr	Isotope	Result
W	AA	D	18540-29-9	HEXCHROME	+2.00E-03
W	AB	D	18540-29-9	HEXCHROME	+2.00E-03
W	AC	D	18540-29-9	HEXCHROME	+5.13E-01
W	AD	D	18540-29-9	HEXCHROME	+2.00E-03
W	AE	D	18540-29-9	HEXCHROME	+2.69E-01
W	AF	D	18540-29-9	HEXCHROME	+2.70E-01

OrigResult	ConcentrationU	ActionCode	AnalysisMethod	SampleAliquotS	SampleAliquotU
	mg/l		7196 CR6	+1.00E+02	ML
	mg/l		7196 CR6	+1.00E+02	ML
	mg/l		7196 CR6	+1.00E+02	ML
	mg/l		7196 CR6	+1.00E+02	ML
	mg/l		7196 CR6	+1.00E+02	ML
	mg/l		7196 CR6	+1.00E+02	ML

LabQualifier	DilutionFactor	DateAnalyzed	TimeAnalyzed	BatchNbr	QcType
LL	1	02/08/2007	08:00	7039294	
U	1	01/08/2007	08:00	7039294	BLK
	1	01/08/2007	08:00	7039294	BS
LI	1	02/08/2007	08:00	7039294	DUP
	1	02/08/2007	08:00	7039294	MS
	1	02/08/2007	08:00	7039294	MSD

SpikeConc	PercentRecover	Rpd	RpdMaximum	Rpd_UCL	LCSMS_LCL
		0			
		4		20.0	

LCS_UCL	TracerYield	DetectionLimit	RL	RLType	CommentCode
		2.00E-03	2.00E-03	BDL	
		2.00E-03	2.00E-03	BDL	
		2.00E-03	2.00E-03	BDL	
		2.00E-03	2.00E-03	BDL	
		2.00E-03	2.00E-03	BDL	
		2.00E-03	2.00E-03	BDL	

STL

RADIOCHEMISTRY, First Level Review

Lot No., Due Date:	J7B080130; 03/23/2007
Client, Site:	108302; FLH HANFORD
QC Batch No., Method Test:	7043486; RALPHATH Alpha by GPC-Th
SDG, Matrix:	W05116; WATER

	Yes	No	N/A
1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?			✓
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	✓		
3.5 Are the sample yields and MDAs within contract limits?	✓		
4.0 Raw Data			
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		
5.0 Other			
5.1 Are all nonconformances included and noted?			✓
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

First Level Review Pam Anderson Date 3-13-07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 704348/6
W0516

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: Sheryl A Adkins Date: 3-14-07

TRENT STL

RADIOCHEMISTRY, First Level Review

Lot No., Due Date:	J7B080130; 03/23/2007
Client, Site:	108302; FLH HANFORD
QC Batch No., Method Test:	7043489; RBETA-SR Beta by GPC-Sr/Y
SDG, Matrix:	W05116; WATER

	Yes	No	N/A
1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?			✓
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	✓		
3.5 Are the sample yields and MDAs within contract limits?	✓		
4.0 Raw Data			
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		
5.0 Other			
5.1 Are all nonconformances included and noted?			✓
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

First Level Review Pam Anderson Date 3-13-07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

OC Batch Number: 7043489
W0516

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: Sheryl R Adam Date: 2-14-07

STL

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

3/12/2007 11:17:12 AM

Lot No., Due Date: J7B080130; 03/23/2007
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 7043485; RTRITIUM H-3 by LSC
SDG, Matrix: W05116; WATER

	Yes	No	N/A
8.0 Correction Calculation Protocol Used. OK	✓		
8.01 The Appropriate Methods Were Used To Analyze the Samples OK	✓		
8.02 Final Results Are in the Appropriate Activity Units OK	✓		
8.03 Batch Contains the Required QC Appropriate for the Method OK	✓		
8.04 The Correct Tracer and QC Vials Where Used in the Samples OK	✓		
8.05 Sample was Appropriately Traced Before or After Fractionating the Sample OK	✓		
8.06 At Least the Minimum Sample Volume Was Used Analysis Volume => JN4WD1AC 5.00<10.00 Q:VB OK AL 3/12/07		✓	
8.07 The Correct Count Geometry was Used. Count Geometry => JPA2V1AF SVP15/5<>SVP10/10 JPA2V1AG SVP15/5<>SVP10/10 JPA2V1AA SVP15/5<>SVP10/10 JPA2V1AC SVP15/5<>SVP10/10 JPA2V1AD SVP15/5<>SVP10/10 JPA2V1AE SVP15/5<>SVP10/10 JN4WD1AC SVP15/5<>SVP10/10 JN4WD1AP SVP15/5<>SVP10/10 Q:VC OK AL 3/12/07		✓	
8.08 The Sample was Counted for the Minimum Count Time or CRDL was Achieved. OK	✓		
8.09 Method Blank is within Control Limits. OK	✓		
8.1 Comments:			
8.11 Matrix Blank is within Control Limits. OK	✓		
8.12 Method Blank(s) < QAS Limit Value (No B Flag Necessary). OK	✓		
8.13 QAS Specified Duplicate Equation Value within Control Limits. RPD > UCL : 20.0=> JN4WD1AP H-3 62.0 (RPD)		✓	
8.14 LCS within Control Limits. OK	✓		
8.15 MLCS within Control Limits. OK	✓		
8.16 MS within Control Limits. No Matrix Spike Samples (MS) found in Batch!			✓
8.17 Tracer within Control Limits. No Tracers found in Batch!			✓
8.18 Samples are above Minimum Tracer Yield (No Failed Samples) No Tracers found in Batch!			✓
8.19 Sample Specific MDC <= CRDL. OK	✓		
8.2 Comments:			
8.21 Result < Lc, Activity Not Detected, U Flag. No Limit Specified!			✓
8.22 Result < Mdc, Activity Not Detected, U Flag. No Positive Results OK Calc_IDL Not Calculated	✓		
8.23 Result <= Action Level, when Defined. OK: No Action Level Found => H-3	✓		

OK; No Callin Level Found => H-3			
8.24 Result + 3s >=0, Not Too Negative. OK	Yes ☑	No	N/A
8.25 Counting Spectrum are within FWHM Limits. No FWHM found in Batch Data!	Yes	No	N/A ☑
8.26 Instruments have Current Calibrations.	Yes	No	N/A
8.27 Correct Count Library Used. No Count Library found in Batch Data!	Yes	No	N/A ☑
8.28 Instrument Background within Limits at Time of Counting. (Not Applicable to this version. To be developed in later versions)	Yes	No	N/A
8.29 Instrument Check Source within Limits at the Time of Counting. (Not Applicable to this version. To be developed in later versions)	Yes	No	N/A
8.3 Comments:			
8.31 Results Blank Subtracted as Appropriate. OK	Yes ☑	No	N/A

First Level Review Angela Long Date 3/12/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 704345
W05116

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: Sheryl A. Adam Date: 5-13-07

Lot No., Due Date: J7B080130; 03/23/2007

Client, Site: 108302; FLH HANFORD

QC Batch No., Method Test: 7043484; RC14 C-14 by LSC

SDG, Matrix: W05116; WATER

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓	No	N/A
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes ✓	No	N/A
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes ✓	No	N/A
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:

First Level Review Thomas E. Mitchell **Date** 2/20/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 7043484
W05116

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: Sheryl A. Adam Date: 2-20-07

SEVERN TRENT STL

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Work Order Number(s): JN48G, JN4WD

Lab Sample Numbers or SDG: ~~W05113~~ W05116

Method/Test/Parameter: Cr+6 in Water / RICH-WC-5003

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with required number of levels?	✓			
2. Correlation coefficient within QC limits?	✓			
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	
2. Were all sample holding times met?	✓			
D. QC Samples				
1. All results for the preparation blank below limits?	✓			
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			
4. Analytical spikes within QC limits where applicable?			✓	
5. ICP only: One serial dilution performed per SDG?			✓	
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
E. Other 1. Are all nonconformances included and noted?			✓	
2. Is the correct date and time of analysis shown?	✓			
3. Did the analyst sign and date the front page of the analytical run?	✓			
4. Correct methodology used?	✓			
5. Transcriptions checked?	✓			
6. Calculations checked at minimum frequency?	✓			
7. Units checked?	✓			

Comments on any "No" response:

Analyst: [signature] Date: 2/8/07

Second-Level Review: Cheryl R Adam Date: 3-22-07

STL RICHLAND

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F07-012-104	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Hughes/Wise	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 7N AIR QUALITY ☐
SAMPLING LOCATION AT-K-2-W D 2/07/07	PROJECT DESIGNATION AQUIFER TUBE SAMPLING IN THE 100-KR-4 OU		SAF NO. F07-012	DATA TURNAROUND 45 Days / 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-451-1	COA 122543ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE Due 05-23-07	
SHIPPED TO Severn Trent Incorporated, Richland	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A J7B080130	

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegitation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool 4C	HNO3 to pH <2	None	None			WO5116		
TYPE OF CONTAINER	aG	P	P	P					
NO. OF CONTAINER(S)	1	1	1	2					
VOLUME	500mL	1000mL	1000mL	1000mL			JN4WD		
SAMPLE ANALYSIS	Chromium Hex - 7196;	Gross Alpha; Gross Beta;	Tritium - H3;	Carbon-14;					

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B1LMW0	WATER	2/07/07	0912	✓	✓	✓	✓					

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: K HUGHES / DATE/TIME: 2-7-07 12:10	RECEIVED BY/STORED IN: MO745 Fridge #1 / DATE/TIME: 2-7-07 12:10	
RELINQUISHED BY/REMOVED FROM: MO745 / DATE/TIME: 2-7-07 1405	RECEIVED BY/STORED IN: Wise / DATE/TIME: 2-7-07 1405	
RELINQUISHED BY/REMOVED FROM: Wise / DATE/TIME: 2-7-07	RECEIVED BY/STORED IN: Eric Dorley / DATE/TIME: 2-7-07 1420	
RELINQUISHED BY/REMOVED FROM / DATE/TIME	RECEIVED BY/STORED IN / DATE/TIME	
RELINQUISHED BY/REMOVED FROM / DATE/TIME	RECEIVED BY/STORED IN / DATE/TIME	
RELINQUISHED BY/REMOVED FROM / DATE/TIME	RECEIVED BY/STORED IN / DATE/TIME	
RELINQUISHED BY/REMOVED FROM / DATE/TIME	RECEIVED BY/STORED IN / DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

SEVERN TRENT STL

Sample Check-in List

Date/Time Received: 2/7/07 1420

Client: FLH SDG #: W05116 NA ( ) SAF #: F07-012 NA ( )

Work Order Number: JTB080130 Chain of Custody # ~~F07~~ F07-012-104

Shipping Container ID: _____ Air Bill # _____

1 Custody Seals on shipping container intact? NA ( ) Yes (✓) No ( )

2. Custody Seals dated and signed? NA ( ) Yes (✓) No ( )

3 Chain of Custody record present? Yes (✓) No ( )

4 Cooler temperature: _____ NA (✓) 5 Vermiculite/packing materials is NA (✓) Wet ( ) Dry ( )

6 Number of samples in shipping container: 1

7. Sample holding times exceeded? NA (✓) Yes ( ) No ( )

8. Samples have:
_____tape
_____custody seals
_____hazard labels
✓ appropriate samples labels

9 Samples are:
✓ in good condition
_____broken
_____leaking.
_____have air bubbles
(Only for samples requiring head space)

10. Sample pH taken? NA ( ) pH<2 (✓) pH>2 (✓) pH>9 ( )

11 Sample Location, Sample Collector Listed? * Yes (✓) No ( )
*For documentation only. No corrective action needed.

12. Were any anomalies identified in sample receipt? Yes ( ) No (✓)

13 Description of anomalies (include sample numbers). _____

Sample Custodian: [signature] Date: 2/7/07 1420

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 RICHLAND

3/2/2007 10:53:29 AM

Sample Preparation/Analysis

Balance Id:1120482733

108302, Fluor Hanford Inc Management Federal Servi, Waste

AZ Gross Alpha PrpRC5014
TZ Gross Alpha by GPC using Th-230 curve
01 STANDARD TEST SET

Pipet #: 244

AnalyDueDate: 03/20/2007 W05116

Sep1 DT/Tm Tech:

Batch: 7043486 WATER pCi/L PM, Quote: SA , 29754

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BockJ / APA

[redacted]

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JN4WD-1-AE J7B080130-1-SAMP [redacted] 02/07/2007 09:12		199.00g,in AmtRec: 500ML,3XLP #Containers: 5		1.5	21.5	.50	12C Scr:	1642 Alpha:	3/9/02010 Beta:	
2 JN4WD-1-AQ-X J7B080130-1-DUP [redacted] 02/07/2007 09:12		199.50g,in AmtRec: 500ML,3XLP #Containers: 5			22.6		12D Scr:	Alpha:	Beta:	
3 JPA2W-1-AA-B J7B120000-486-BLK [redacted] 02/07/2007 09:12		201.30g,in AmtRec: #Containers: 1			0.1		12B Scr:	1746 Alpha:	Beta:	
4 JPA2W-1-AC-C J7B120000-486-LCS [redacted] 02/07/2007 09:12		199.80g,in AmtRec: #Containers: 1	ASD4137 02/14/07,pd 02/09/06,r		0.6		12A Scr:	Alpha:	Beta:	

Comments: pH < 2.0 JB 3-2-07

All Clients for Batch:
108302, Fluor Hanford Inc Waste Management Federal Servi, SA , 29754

JN4WD1AE-SAMP Constituent List:

ALPHA	RDL:3	pCi/L	LCL:	UCL:	RPD:
JPA2W1AA-BLK:					
ALPHA	RDL:3	pCi/L	LCL:	UCL:	RPD:
JPA2W1AC-LCS:					
Am-241	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

JN4WD1AE-SAMP Calc Info:

STL RICHLAND

3/2/2007 10:50:20 AM

Sample Preparation/Analysis

Balance Id:1120482733

108302, Fluor Hanford Inc , Waste
Management Federal Servi

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

Pipet #: 244

AnalyDueDate: 03/20/2007 WO 5116

Sep1 DT/Tm Tech:

Batch: 7043489 WATER pCi/L PM, Quote: SA , 29754

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BockJ/APA

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	[redacted] Size	[redacted] Geometry	[redacted] Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JN4WD-1-AA J7B080130-1-SAMP [redacted] 02/07/2007 09:12		201.20g,in AmtRec: 500ML,3XLP	#Containers: 5	1.5	38.2	100	32A Scr:	1526 Alpha:	3/9/07 R	Beta:
2 JN4WD-1-AR-X J7B080130-1-DUP [redacted] 02/07/2007 09:12		206.70g,in AmtRec: 500ML,3XLP	#Containers: 5		37.9		32B Scr:	Alpha:		Beta:
3 JPA22-1-AA-B J7B120000-489-BLK [redacted] 02/07/2007 09:12		199.40g,in AmtRec:	#Containers: 1		∅		32C Scr:	Alpha:		Beta:
4 JPA22-1-AC-C J7B120000-489-LCS [redacted] 02/07/2007 09:12		201.10g,in AmtRec:	BESB3021 02/26/07,pd 08/08/06,r #Containers: 1		0.2		32d Scr:	Alpha:		Beta:

Comments: pH <2.0 JB 3-2-07

All Clients for Batch:
108302, Fluor Hanford Inc Waste Management Federal Servi, SA , 29754

JN4WD1AA-SAMP Constituent List:

BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:
JPA221AA-BLK:					
BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:
JPA221AC-LCS:					
Sr-90	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

JN4WD1AA-SAMP Calc Info:

STL RICHLAND

2/12/2007 4:42:09 PM

Sample Preparation/Analysis

108302, Fluor Hanford Inc Management Federal Servi , Waste

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

AnalyDueDate: 03/20/2007 WD5116

Batch: 7043485 WATER pCi/L PM, Quote: SA , 29754

SEQ Batch, Test: None

Balance Id: 12445

Pipet #:

Sep1 DT/Tm Tech: 3-1-07 [illegible]

Sep2 DT/Tm Tech:

Prep Tech:

[redacted]

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JN4WD-1-AC J7B080130-1-SAMP [redacted] 02/07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
2 JN4WD-1-AP-X J7B080130-1-DUP [redacted] 02/07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
3 JPA2V-1-AA-B J7B120000-485-BLK [redacted] 02/07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
4 JPA2V-1-AC-C J7B120000-485-LCS [redacted] 02/07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
6 JPA2V-1-AD-BX J7B120000-485-MBLK [redacted] 02/07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
6 JPA2V-1-AE-CM J7B120000-485-MLCS [redacted] 02/07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
7 JPA2V-1-AF-BN J7B120000-485-IBLK [redacted] 02/07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

STL RICHLAND

2/12/2007 4:42:18 PM

Sample Preparation/Analysis

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

Balance Id: 12445
Pipet #:
Sep1 DT/Tm Tech: 3-1-07
Sep2 DT/Tm Tech:
Prep Tech:

AnalyDueDate: 03/20/2007

Batch: 7043485 pCi/L
SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On / Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 JPA2V-1-AG-BN								
J7B120000-485-IBLK								
[redacted]								
02/07/2007 09:12	AmtRec:		IContainers: 1			Scr:	Alpha:	Beta:

Comments:

All Clients for Batch:
108302, Fluor Hanford Inc Waste Management Federal Servi, SA , 29754

JN4WD1AC-SAMP Constituent List:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
JPA2V1AA-BLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:
JPA2V1AC-LCS:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
JPA2V1AD-MBLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:
JPA2V1AE-MLCS:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
JPA2V1AF-IBLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:
JPA2V1AG-IBLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:

JN4WD1AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPA2V1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPA2V1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPA2V1AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPA2V1AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPA2V1AF-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

STL RICHLAND

2/12/2007 4:42:19 PM

Sample Preparation/Analysis

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

Balance Id:

Pipet #:

AnalyDueDate: 03/20/2007

Sep1 DT/Tm Tech:

Batch: 7043485 pCi/L

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech:

[redacted]

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

UPA2V1AG-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

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12/2007 4:42:03 PM

Sample Preparation/Analysis

)8302, Fluor Hanford Inc , Waste
anagement Federal Servi

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

Balance Id: N/A
Pipet #:
Sep1 DT/Tm Tech: 2-13-07am
Sep2 DT/Tm Tech:
Prep Tech:

alyDueDate: 03/20/2007 W051160

atch: 7043484 WATER pCi/L PM, Quote: SA , 29754

EQ Batch, Test: None

[redacted]

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On / Off (24hr) Circle	CR Analyst, Init/Date	Comments:
JN4WD-1-AF B080130-1-SAMP [redacted] /07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
JN4WD-1-AN-X B080130-1-DUP [redacted] /07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
JPA2T-1-AA-B B120000-484-BLK [redacted] /07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
JPA2T-1-AC-C B120000-484-LCS [redacted] /07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
JPA2T-1-AD-BN B120000-484-IBLK [redacted] /07/2007 09:1[illegible]		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

Comments:

1 Clients for Batch:
108302, Fluor Hanford Inc Waste Management Federal Servi, SA , 29754

4WD1AF-SAMP Constituent List:
C-14 RDL:200 pCi/L LCL:70 UCL:130 RPD:20

STL Richland Key: In - Initial Amt, fi - Final Amt, dl - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1 ISV - Insufficient Volume for Analysis WO Cnt: 5
Richland Wa. pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added ICOC v4.8.26

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STL RICHLAND

12/2007 4:42:09 PM

Sample Preparation/Analysis

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

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

alyDueDate: 03/20/2007

atch: 7043484 pCi/L
EQ Batch, Test: None

[redacted]

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

```
A2T1AA-BLK:
C-14        RDL:200        pCi/L    LCL:       UCL:       RPD:
A2T1AC-LCS:
C-14        RDL:200        pCi/L    LCL:70     UCL:130    RPD:20
A2T1AD-IBLK:
C-14        RDL:200        pCi/L    LCL:       UCL:       RPD:

$WD1AF-SAMP Calc Info:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
A2T1AA-BLK:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
A2T1AC-LCS:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
A2T1AD-IBLK:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

Approved By _____ Date: _____

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STL RICHLAND

'8/2007 10:19:41 AM

Sample Preparation/Analysis

Balance Id:

)8302, Fluor Hanford Inc , Waste
anagement Federal Servi

88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
EA Chromium, Hexavalent (7196A)
01 STANDARD TEST SET

Pipet #: _____

nalyDueDate: 03/20/2007

Sep1 DT/Tm Tech:

atch: 7039294 WATER ug/L
EQ Batch, Test: None All Tests: 7039294 88EA,

PM, Quote: SA , 29754

Sep2 DT/Tm Tech:

Prep Tech:

[redacted]

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
JN4WD-1-AD B080130-1-SAMP [redacted] /07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
JN4WD-1-AK-S B080130-1-MS [redacted] /07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
JN4WD-1-AL-D B080130-1-MSD [redacted] /07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
JN4WD-1-AM-X B080130-1-DUP [redacted] /07/2007 09:12		AmtRec: 500ML,3XLP	#Containers: 5			Scr:	Alpha:	Beta:
JN48G-1-AA-B B080000-294-BLK [redacted] /07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
JN48G-1-AC-C B080000-294-LCS [redacted] /07/2007 09:12		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

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STL RICHLAND

8/2007 10:19:52 AM

Sample Preparation/Analysis

88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
EA Chromium, Hexavalent (7196A)
01 STANDARD TEST SET

Balance Id:
Pipet #:

nalyDueDate: 03/20/2007

Sep1 DT/Tm Tech:

atch: 7039294 ug/L
EQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech:

[redacted]

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

Comments:

I Clients for Batch:
108302, Fluor Hanford Inc Waste Management Federal Servi, SA , 29754

```
WD1AD-SAMP Constituent List:
EXCHROME   RDL:        ug/L    LCL:85    UCL:115    RPD:20
WD1AK-MS Constituent List:
EXCHROME   RDL:10      ug/L    LCL:85    UCL:115    RPD:20
WD1AL-MSD:
EXCHROME   RDL:10      ug/L    LCL:85    UCL:115    RPD:20
8G1AA-BLK:
EXCHROME   RDL:        ug/L    LCL:      UCL:       RPD:
8G1AC-LCS:
EXCHROME   RDL:10      ug/L    LCL:85    UCL:115    RPD:20
WD1AD-SAMP Calc Info:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
WD1AK-MS Calc Info:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
WD1AL-MSD:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
8G1AA-BLK:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
8G1AC-LCS:
   Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

Approved By _____ Date: _____

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STL RICHLAND

3/13/2007 2:06:27 PM

ICOC Fraction Transfer/Status Report

ByDate: 3/13/2006, 3/18/2007, Batch: '7043486', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7043486						
AC		CalcC	BockJ	3/2/2007 10:49:37		
SC			wagarr	IsBatched	2/12/2007 4:43:09 PM	ICOC_RADCALC v4.8.26
SC			BockJ	InPrep	3/2/2007 10:49:37 AM	rich-rc-5014 rEVISION 6
SC			BockJ	Prep1C	3/2/2007 10:54:07 AM	RICH-RC-5014 REVISION 6
SC			AshworthA	InPrep2	3/8/2007 9:22:17 AM	RICH-RC-5014 REVISION 6
SC			AshworthA	Prep2C	3/9/2007 1:37:12 PM	RICH-RC-5014 REVISION 6
SC			StringerR	InCnt1	3/9/2007 1:40:14 PM	RICH-RD-0003 REVISION 4
SC			DAWKINSO	CalcC	3/9/2007 6:24:59 PM	RICH-RD-0003 REVISION 4
AC			BockJ	3/2/2007 10:54:07		
AC			AshworthA	3/8/2007 9:22:17 AM		
AC			AshworthA	3/9/2007 1:37:12 PM		
AC			StringerR	3/9/2007 1:40:14 PM		
AC			DAWKINSO	3/9/2007 6:24:59 PM		

AC: Accepting Entry; SC: Status Change

STL Richland

Grp Rec Cnt: 6

ICOCFractions v4.8.26

3/13/2007 2:05:49 PM

ICOC Fraction Transfer/Status Report

ByDate: 3/13/2006, 3/18/2007, Batch: '7043489', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7043489						
AC		CalcC	BockJ	3/2/2007 10:46:25		
SC			wagarr	IsBatched	2/12/2007 4:43:09 PM	ICOC_RADCALC v4.8.28
SC			BockJ	InPrep	3/2/2007 10:48:25 AM	rich-rc-5014 rEVISION 6
SC			BockJ	Prep1C	3/2/2007 10:49:19 AM	RICH-RC-5014 REVISION 6
SC			AshworthA	InPrep2	3/8/2007 9:22:11 AM	RICH-RC-5014 REVISION 6
SC			AshworthA	Prep2C	3/9/2007 1:37:22 PM	RICH-RC-5014 REVISION 6
SC			StringerR	InCnt1	3/9/2007 1:40:19 PM	RICH-RD-0003 REVISION 4
SC			DAWKINSO	CalcC	3/9/2007 4:17:39 PM	RICH-RD-0003 REVISION 4
AC			BockJ	3/2/2007 10:49:19		
AC			BockJ	3/2/2007 10:55:47		
AC			AshworthA	3/8/2007 9:22:11 AM		
AC			AshworthA	3/9/2007 1:37:22 PM		
AC			StringerR	3/9/2007 1:40:19 PM		
AC			DAWKINSO	3/9/2007 4:17:39 PM		

AC: Accepting Entry; SC: Status Change

STL Richland

Grp Rec Cnt: 7

ICOCFractions v4.8.26

3/12/2007 11:16:03 AM

ICOC Fraction Transfer/Status Report

ByDate: 3/12/2006, 3/17/2007, Batch: '7043485', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7043485						
AC		CalcC	McDowellD	3/1/2007 10:54:50		
SC			wagarr	IsBatched	2/12/2007 4:43:08 PM	ICOC_RADCALC v4.8.26
SC			McDowellD	InSep1	3/1/2007 10:54:50 AM	RICH-RC-5007 REVISION 6
SC			McDowellD	Sep1C	3/7/2007 1:54:29 PM	RICH-RC-5007 REVISION 6
SC			StringerR	InCnt1	3/7/2007 2:34:28 PM	RICH-RD-0001 REVISION 3
SC			StringerR	CalcC	3/11/2007 9:59:13 AM	RICH-RD-0001 REVISION 3
AC			McDowellD	3/7/2007 1:54:29 PM		
AC			StringerR	3/7/2007 2:34:28 PM		
AC			StringerR	3/11/2007 9:59:13		

AC: Accepting Entry; SC: Status Change

STL Richland

Grp Rec Cnt:4

2/20/2007 12:39:30 PM

ICOC Fraction Transfer/Status Report

ByDate: 2/20/2006, 2/25/2007, Batch: '7043484', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7043484						
AC		CalcC	McDowellD	2/13/2007 9:53:20		
SC			wagarr	IsBatched	2/12/2007 4:43:09 PM	ICOC_RADCALC v4.8.26
SC			McDowellD	InSep1	2/13/2007 9:53:20 AM	RICH-RC-5022 REVISION 3
SC			McDowellD	Sep1C	2/19/2007 1:40:32 PM	RICH-RC-5022 REVISION 3
SC			BlackCL	InCnt1	2/19/2007 1:43:22 PM	RICH-RD-0001 REVISION 3
SC			BlackCL	CalcC	2/20/2007 8:52:53 AM	RICH-RD-0001 REVISION 3
AC			McDowellD	2/19/2007 1:40:32 PM		
AC			BlackCL	2/19/2007 1:43:22 PM		
AC			BlackCL	2/20/2007 8:52:53		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa

Grp Rec Cnt: 4

ICOCFractions v4.8.26

SEVERN TRENT **STL**

STL Richland
Hexavalent Chromium - Water

Analyst:	S. Wheland	Calibration Curve Information				SOP Information		BATCH #	7039294
Start Date:	2/8/2007		Amount	Conc.(mg/L)	ABS.	RICH-WC-5003		SDG #	
Start Time:	8:00	Blank	0.000	0.000	0.000	Revision 7		Matrix	Water
End Date:	2/8/2007	Std. 1	0.100	0.050	0.108				
End Time	9:00	Std. 2	0.500	0.250	0.487			Instrument Information	
		Std. 3	0.750	0.375	0.716	MDL (mg/L)	0.002	Instrument:	Hach DR2010
Analyst Signature:		Std. 4	1.500	0.750	1.415			Wavelength:	540
		Std 5	2.000	1.000	1.849			R Squared	0.99971
Date:	02/08/07	Standard Volume (mL):			100.000			Slope:	1.84873
		Date of Curve:			2/8/2007			Intercept:	0.01631

		Calibration Information:	ICV Information:		LCS Information:		Matrix Spike Information:	
Dilution ID #		Cr-07-0015	Cr-07-0016		Cr-07-0015		Cr-07-0015	
Prep Date:		02/08/07	02/08/07		02/08/07		02/08/07	
Concentration (mg/L)		50	50		50		50	
Expiration Date:		02/09/07	02/09/07		02/09/07		02/09/07	
Pipettor(s)		70,190	190		190		190	
Volume Used (	Expected Value		1.000	0.50000	1.00	0.50000	0.50	0.26316

Expected values are only amounts added in mg and not final concentrations

Sample ID	Client ID	Type	Sample Volume (mL)	Sample ABS.	Blank ABS.	Corrected ABS.	Dilution Factor	Curve Conc. (mg/L)	Final Conc. (mg/L)	% Rec.
n/a	n/a	ICV	100.000	0.955	0.000	0.955	1	0.5083	0.508	101.66%
n/a	n/a	ICB	100.000	0.003	0.000	0.003	1	-0.0067	<MDL	
JN48G-1AA-B	n/a	Prep Blank	100.000	0.008		0.008	1	-0.0040	<MDL	
JN48G-1AC-C	n/a	LCS	100.000	0.964		0.964	1	0.5132	0.513	102.63%
JN4WD-1AD	B1LMW0	Sample	100.000	0.008		0.008	1	-0.0040	<MDL	
JN4WD-1AC-S	B1LMW0-MS	MS	100.000	0.513		0.513	1	0.2692	0.269	102.30%
JN4WD-1AD-D	B1LMW0-MSD	MSD	100.000	0.514		0.514	1	0.2698	0.270	102.51%
JN4WD-1AE-X	B1LMW0-DUP	Duplicate	100.000	0.007		0.007	1	-0.0045	<MDL	
			100.000				1			
			100.000				1			
			100.000				1			
n/a	n/a	CCV	100.000	0.956		0.956	1	0.5088	0.509	101.77%
n/a	n/a	CCB	100.000	0.004		0.004	1	-0.0061	<MDL	
			100.000				1			
			100.000				1			
			100.000				1			
			100.000				1			
			100.000				1			
			100.000				1			