Analytical Data Package Prepared For

Pacific Northwest National Lab

Radiochemical Analysis By

STL Richland STLRL

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

Data Package Contains _____ Pages

Report Nbr: 29854

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W04674A	W05-006	B1D1K9	J5H090156-1	HG6061AA	9HG60610	5222207
		B1D1H1	J5H090156-2	HG61M2AA	9HG61M20	5236176

RECEIVED
SEP 17 2012
EDMC

Comments:

1216865

Certificate of Analysis
RECHECK, RECOUNT, OR REANALYSIS ORDER
ORDER NUMBER 050809STLRL-R3098

Pacific Northwest National Laboratories
Sigma V Building
Richland, WA 99352

August 31, 2005

Attention: Dot Stewart

SAF Number	:	W05-006
Date SDG Closed	:	August 9, 2005
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W04674A
Data Deliverable	:	15-Day / Priority

CASE NARRATIVE

I. Introduction

On August 9, 2005, a reanalysis request for two water samples was received at STL Richland (STLR). Upon request, the samples were assigned the following laboratory ID numbers to correspond with the Pacific Northwest National Laboratories (PGW) specific IDs:

PGW ID#	STLR ID#	MATRIX	DATE OF RECEIPT
B1D1K9	HG606	WATER	8/9/05
B1D1H1	HG61M	WATER	8/9/05

II. Sample Receipt

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

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: **Laser Induced Phosphorimetry**
Total Uranium by method RICH-RC-5058

IV. Quality Control

The analytical results for each analysis performed under SDG W04674A 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

Laser Induced Phosphorimetry
Total Uranium by method RICH-RC-5058:
The reanalysis result is within RER acceptance criteria for B1D1H1. The reanalysis result is not within RER acceptance criteria for B1D1K9. The achieved MDAs for samples B1D1H1 and B1D1H1 matrix spike are greater than the CRDL. The detected activities exceed the achieved MDAs; the results for all samples are accepted for reporting with the MDAs achieved. The sample and sample matrix spike were reanalyzed and are acceptable. Except as noted, the LCS, batch blank, sample, sample duplicate (B1D1K9) and sample matrix spike (B1D1H1) 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:

Sandra Seger

Hans Carman
for 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.

STL Richland Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD Version: 05 Rpt Nbr: 29854 File Name: h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:	Collection Date:
9HG60610	B1D1K9		MW6-SBB-A1	W05-006	W04674A					06/06/2005 11:23

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
5222207	Uranium	7440-61-1	2.02E+01	ug/L	2.4E+00	2.4E+00		8.70E-02		UTOT_KPA	2.41E-02	ML	08/22/200 14:28	I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:	Collection Date:
9HG61M20	B1D1H1		MW6-SBB-A1	W05-006	W04674A					06/06/2005 10:55

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
5236176	Uranium	7440-61-1	2.72E+01	ug/L	3.2E+00	3.2E+00		2.10E-01		UTOT_KPA	1.00E-02	ML	08/25/200 14:58	I

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, September 01, 2005

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id: HG81G1AB **Sdg/Rept Nbr:** W04674A 29854 **Collection Date:** 06/06/2005 11:23

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BLK **Received Date:** 06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AE	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5222207	Uranium	1.59E-02	ug/L	1.8E-03	U	8.09E-02			UTOT_KPA	2.59E-02	08/22/2005				D
BLK	7440-61-1			1.8E-03						ML	14:17				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, September 01, 2005

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id: HH4811AB **Sdg/Rept Nbr:** W04674A 29854 **Collection Date:** 06/06/2005 10:55

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BLK **Received Date:** 06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AH	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5236176	Uranium	-1.11E-02	ug/L	2.2E-03	U	7.54E-02			UTOT_KPA	2.78E-02	08/25/2005				D
BLK	7440-61-1			2.2E-03						ML	14:41				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, September 01, 2005

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id: HG81G1CS **Sdg/Rept Nbr:** W04674A 29854 **Collection Date:** 06/06/2005 11:23

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BS **Received Date:** 06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AF	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5222207	Uranium	3.49E+01	ug/L	4.1E+00		7.82E-02		3.40E+01	UTOT_KPA	2.68E-02	08/22/2005			70	D
BS	7440-61-1			4.1E+00				102.7		ML	14:20			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id: HG81G1DS **Sdg/Rept Nbr:** W04674A 29854 **Collection Date:** 06/06/2005 11:23

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BS **Received Date:** 06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AG	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5222207	Uranium	3.43E+01	ug/L	3.5E+00		7.82E-02		3.40E+01	UTOT_KPA	2.68E-02	08/22/2005			70	D
BS	7440-61-1			3.5E+00				101.1		ML	14:24			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, September 01, 2005

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id: HH4811CS **Sdg/Rept Nbr:** W04674A 29854 **Collection Date:** 06/06/2005 10:55

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BS **Received Date:** 06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AI	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5236176	Uranium	3.05E+01	ug/L	3.6E+00		7.85E-02		3.40E+01	UTOT_KPA	2.67E-02	08/25/2005			70	D
BS	7440-61-1			3.6E+00				89.6		ML	14:47			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, September 01, 2005

STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id: HG6061CR **Sdg/Rept Nbr:** W04674A 29854 **Collection Date:** 06/06/2005 11:23

Client Id: B1D1K9 **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** DUP **Received Date:** 06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
W05-006	MW6-SBB-A19981								AC	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5222207	Uranium	2.03E+01	ug/L	2.4E+00		8.38E-02			UTOT_KPA	2.50E-02	08/22/2005	.3	0.		D
DUP	7440-61-1	2.02E+01		2.4E+00						ML	14:33	20.0	3		

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, September 01, 2005

STL Richland Qc Matrix Spike Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04674A.Edd, h:\Reportdb\edd\FeadIV\Rad\29854.E

Lab Sample Id:	HG61M2CW	**Sdg/Rept Nbr:**	W04674A 29854	**Collection Date:**	06/06/2005 10:55
Client Id:	B1D1H1	**Matrix:**	WATER WATER	**Sample On Date:**	
Moisture/Solids%*:		**QC Type:**	**MS**	**Received Date:**	06/06/2005

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
W05-006	MW6-SBB-A19981								AD	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
5236176	Uranium	8.76E+01	ug/L	1.4E+01		1.96E-01		8.43E+01	UTOT_KPA	1.07E-02	08/25/2005			60	D
MS	7440-61-1			1.4E+01				103.9		ML	15:00			140	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/26/2005 11:02:28 AM

Lot No., Due Date: J5H090156; 08/24/2005

Client, Site: 384868; PGW 615HANFORD HANFORD

QC Batch No., Method Test: 5222207; RUNAT UNat by KPA

SDG, Matrix: W04674A; 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:

The matrix spike is out. It is being ranalyzed.

First Level Review Pam Anderson **Date** 8-26-05

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/26/2005 11:01:18 AM

Lot No., Due Date: J5H090156; 08/24/2005

Client, Site: 384868; PGW 615HANFORD HANFORD

QC Batch No., Method Test: 5236176; RUNAT UNat by KPA

SDG, Matrix: W04674A; WATER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
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

	Yes	No	N/A
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

	Yes	No	N/A
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

	Yes	No	N/A
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:

The matrix spike was reanalyzed when the original analysis had a low recovery. The sample result on both analyses was the same.

CRDLs not met 10.06505 10.06453

First Level Review Pam Anderson **Date** 8.26.05

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 5222207 & 5236176

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: B1D1H1 and B1D1H1 dup activity > MDA > CRDL

Second Level Review: Jodie C. Date: 8/31/05

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

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-06505**
NCM Initiated By: Pam Anderson
Date Opened: 08/31/2005
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Sep
Tests: UNat by KPA
Lot #'s (Sample #'s): J5H090156 (2),
QC Batches: 5236176

Nonconformance: MDA not met
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	08/31/2005	The CRDL is not met due to a small aliquot volume. The sample aliquot was reduced due to high activity. The results >MDA>CRDL.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	08/31/2005	na

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-06453**
NCM Initiated By: Pam Anderson
Date Opened: 08/26/2005
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Sep
Tests: UNat by KPA
Lot #'s (Sample #'s): J5H090156 (2),
QC Batches: 5236176

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	08/26/2005	Sample hg61m and it's matrix spike were reanalyzed when the original matrix spike failed with a low recovery. The sample result on both analyses was the same.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	08/26/2005	The matrix spike was reanalyzed.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

08/09/2005
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-

Severn Trent
2800 George Washington
Richland, WA 99354

SDG W04674A
J5H090156
DM 082405

Battelle PNNL Order 050809STLRL-R3098
Sample Delivery W04674 A
Special None
Samples(s

	Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME	
HG606	9HC2E910	B1D1K9	Reanalysis	15/15	UTOT_KPA	J5F060218
HG61M	9HC2EV10	B1D1H1	Reanalysis	15/15	UTOT_KPA	J5F060212

218
W05-006-117
060605 1340 1123

212
W05-006-97
060605 1500 1055

Deliver Report Results Dorothy L. Stewart, K6-96

c/o Secretary
3110 Port of Benton Blvd.

The report results must reference the Battelle PNNL-order number, SDG number, and the Battelle PNNL sample identification number shown above.

8/15/2005 2:30:59 PM

Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Labortories ,
Pacific Northwest National Lab

DH UNat_Laser PrpRC5015
SS Total Uranium by KPA
5I CLIENT: HANFORD

Pipet #:

Report Due: 08/24/2005 W046074A

Sep1 DT/Tm Tech:

Batch: 5222207 WATER ug/L PM, Quote: SS , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,GiroirB Scott

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 HG606-1-AA J5H090156-1-SAMP 06/06/2005 11:23	Final Vol 10ml	24.10g,in AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:
2 HG606-1-AC-X J5H090156-1-DUP 06/06/2005 11:23		25.00g,in AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:
3 HG61M-1-AA J5H090156-2-SAMP 06/06/2005 10:55		26.60g,in AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:
4 HG61M-1-AC-S J5H090156-2-MS 06/06/2005 10:55		28.50g,in AmtRec: 500P	UNSF2547 08/04/05,pd 03/22/05,r #Containers: 1			Scr Rst:	Alpha:	Beta:
5 HG81G-1-AA-B J5H100000-207-BLK 06/06/2005 11:23		25.90g,in AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 HG81G-1-AC-C J5H100000-207-LCS 06/06/2005 11:23		26.80g,in AmtRec:	UNSF2548 08/04/05,pd 03/22/05,r #Containers: 1			Scr Rst:	Alpha:	Beta:
7 HG81G-1-AD-C J5H100000-207-LCS 06/06/2005 11:23		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

8/15/2005 2:31:01 PM

Sample Preparation/Analysis

DH UNat_Laser PrpRC5015
SS Total Uranium by KPA
5I CLIENT: HANFORD

Balance Id:

Pipet #:

Report Due: 08/24/2005

Sep1 DT/Tm Tech:

Batch: 5222207 ug/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	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments:

pH verified @ ≤ 2 in prep

All Clients for Batch:
384868, Pacific Northwest National Labortories Pacific Northwest National Lab, SS , 57671

HG6061AA-SAMP Constituent List:
Uranium RDL:1.44E-01 ug/L LCL: UCL: RPD:
HG61M1AC-MS:

HG81G1AA-BLK:
Uranium RDL:1.44E-01 ug/L LCL: UCL: RPD:
HG81G1AC-LCS:
Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20
HG81G1AD-LCS:
Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20

HG6061AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HG61M1AC-MS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HG81G1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HG81G1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HG81G1AD-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

8/26/2005 10:10:53 AM

ICOC Fraction Transfer/Status Report

ByDate: 8/26/2004, 8/31/2005, Batch: '5222207', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
5222207						
AC		**Cnt1C**	**GiroirB**	8/15/2005 11:39:01		
SC			wagarr	IsBatched	8/10/2005 9:52:04 AM	ICOC_RADCALC v4.8.08
SC			GiroirB	InPrep	8/15/2005 11:39:01 AM	RICH-RC-5015 REVISION 4
SC			GiroirB	Prep1C	8/15/2005 2:43:10 PM	RICH-RC-5015 REVISION 4
SC			BarbosaH	InCnt1	8/22/2005 2:16:15 PM	RICH-RC-5058 REVISION 6
SC			BarbosaH	Cnt1C	8/22/2005 4:59:39 PM	RICH-RC-5058 REVISION 6
AC			**GiroirB**	8/15/2005 2:43:10 PM		
AC			**BarbosaH**	8/22/2005 2:16:15 PM		
AC			**BarbosaH**	8/22/2005 4:59:39 PM		

AC: Accepting Entry; SC: Status Change

SEVERN TRENT STL

*** RE-ANALYSIS REQUEST ***

DUE DATE 8 24 05

CUSTOMER BHI 1

ANALYSIS U nat

MATRIX water

LOT NUMBER ~~W0 46 74~~ A J5H090156

SAMPLE DELIVERY GROUP W0 4674A

OLD BATCH NUMBER 5222207

NEW BATCH NUMBER 5236176

LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) HC-61M1AA	ms out use 10ml for SA TMS
2) HC61M1AC XMS	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
LAB QC ID	Assigned with new batch.

8/24/2005 10:10:30 AM

Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Labortories ,
Pacific Northwest National Lab

DH UNat_Laser PrpRC5015
SS Total Uranium by KPA
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 08/24/2005 W04674A

Sep1 DT/Tm Tech:

Batch: 5236176 WATER ug/L

PM, Quote: SS , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,GiroirB

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 HG61M-2-AA J5H090156-2-SAMP 06/06/2005 10:55	Final Vol 10ml	10.00g,in AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:
2 HG61M-2-AC-S J5H090156-2-MS 06/06/2005 10:55		10.70g,in AmtRec: 500P	UNSF2561 08/04/05,pd 03/22/05,r #Containers: 1			Scr Rst:	Alpha:	Beta:
3 HH481-1-AA-B J5H240000-176-BLK 06/06/2005 10:55		27.80g,in AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
4 HH481-1-AC-C J5H240000-176-LCS 06/06/2005 10:55		26.70g,in AmtRec:	UNSF2562 08/04/05,pd 03/22/05,r #Containers: 1			Scr Rst:	Alpha:	Beta:
5 HH481-1-AD-C J5H240000-176-LCS 06/06/2005 10:55		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

Comments:

All Clients for Batch:
384868, Pacific Northwest National Labortories Pacific Northwest National Lab, SS , 57671

HG61M2AA-SAMP Constituent List:
Uranium RDL:1.44E-01 ug/L LCL: UCL: RPD:

8/24/2005 10:10:32 AM

Sample Preparation/Analysis

DH UNat_Laser PrpRC5015
SS Total Uranium by KPA
5I CLIENT: HANFORD

Report Due: 08/24/2005

Batch: 5236176 ug/L
SEQ Batch, Test: None

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

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

HG61M2AC-MS Constituent List:

HH4811AA-BLK:
Uranium RDL:1.44E-01 ug/L LCL: UCL: RPD:
HH4811AC-LCS:
Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20
HH4811AD-LCS:
Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20

HG61M2AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HG61M2AC-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HH4811AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HH4811AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
HH4811AD-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

8/26/2005 10:07:05 AM

ICOC Fraction Transfer/Status Report

ByDate: 8/26/2004, 8/31/2005, Batch: '5236176', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
5236176						
AC		**Cnt1C**	**GiroirB**	8/24/2005 10:14:19		
SC			andersonp	IsBatched	8/24/2005 8:18:56 AM	ICOC_RADCALC v4.8.08
SC			GiroirB	Prep1C	8/24/2005 10:14:19 AM	RICH-RC-5015 REVISION 4
SC			ScottM	Prep2C	8/25/2005 1:57:38 PM	RICH-RC-5015 REVISION 4
SC			BarbosaH	InCnt1	8/25/2005 2:40:06 PM	RICH-RC-5058 REVISION 6
SC			BarbosaH	Cnt1C	8/25/2005 3:17:03 PM	RICH-RC-5058 REVISION 6
AC			**ScottM**	8/25/2005 1:57:38 PM		
AC			**BarbosaH**	8/25/2005 2:40:06 PM		
AC			**BarbosaH**	8/25/2005 3:17:03 PM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.8.09