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 17 *Pages*

Report Nbr: 34469

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05080 I	S06-007	B1JL54	J6L290143-2	JL8VJ1AA	9JL8VJ10	7002229
		B1JL53	J6L290143-3	JL8VL1AA	9JL8VL10	7002229

APRIL 20, 2007

Rec 1/20/07

Comments:

APRIL 20, 2007

SEVERN TRENT STL

STL Richland
2800 George Washington Way
Richland, WA 99354

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

Certificate of Analysis

Pacific Northwest National Laboratories
Sigma V Building
Richland, WA 99352

March 16, 2007

Attention: Dot Stewart

SAF Number	:	S06-007
Date SDG Closed	:	December 27, 2006
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W05080 L
Data Deliverable	:	45-Day / Summary

CASE NARRATIVE

I. Introduction

On December 27, 2006 two water samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Pacific Northwest National Laboratories (PGW) specific IDs:

PGW ID#	STLR ID#	DATE OF RECEIPT	MATRIX
B1JL53	JL8VL	12/27/06	WATER
B1JL54	JL8VJ	12/27/06	WATER

II. Sample Receipt

The samples were 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:

Alpha Spectroscopy
Uranium 234, 235 and 238 by method RICH-RC-5039

Pacific Northwest National Laboratories
March 16, 2007

Liquid Scintillation Counting
Enriched Tritium by method RICH-RC-5024

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

Liquid Scintillation Counting
Enriched Tritium by method RICH-RC-5024
The LCS, batch blank, samples and sample duplicate (B1JL54) 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:

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.

3/16/2007 9:44:27 AM

STL Richland Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD Version: 05 Rpt Nbr: 34469 File Name: h:\Reportdb\edd\FeadIV\Rad\W05080.Edd, h:\Reportdb\edd\FeadIV\Rad\34469.Edd

Lab Sample id:	Client id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:	Collection Date:
9JL8VJ10	B1JL54		MW6-SBB-A1	S06-007	W05080 I					12/27/2006 12:12

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7002229	H-3	10028-17-8	1.65E+02	pCi/L	1.2E+01	3.1E+01		6.01E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	03/07/2007 15:26	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:
9JL8VL10	B1JL53		MW6-SBB-A1	S06-007	W05080 I					12/27/2006 07:05

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7002229	H-3	10028-17-8	1.05E+02	pCi/L	9.0E+00	2.1E+01		5.99E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	03/07/2007 18:01	I

APRIL 20, 2007

STL Richland

rptFeadRadSummaryEdd v3.48

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.

I

Friday, March 16, 2007

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05080.Edd, h:\Reportdb\edd\FeadIV\Rad\34469.Edd

Lab Sample Id:	JMAM31AB	**Sdg/Rept Nbr:**	W05080	34469	**Collection Date:** 12/27/2006 12:12
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BLK		**Received Date:** 12/27/2006

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	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
7002229	H-3	7.80E+00	pCi/L	6.6E+00		6.02E+00	100.0		TRITIUM_ELE	1.50E-01	03/07/2007				D
BLK	10028-17-8			4.6E+00						L	12:50				

APRIL 20, 2007

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.

Friday, March 16, 2007

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05080.Edd, h:\Reportdb\edd\FeadIV\Rad\34469.Edd

Lab Sample Id: JMAM31CS
Client Id: NA
Moisture/Solids%*:

Sdg/Rept Nbr: W05080 I 34469
Matrix: WATER WATER
QC Type: BS

Collection Date: 12/27/2006 12:12
Sample On Date:
Received Date: 12/27/2006

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
7002229	H-3	3.51E+02	pCi/L	6.3E+01		6.01E+00	100.0	4.51E+02	TRITIUM_ELE	1.5002E-01	03/07/2007			70	D
BS	10028-17-8			1.6E+01				77.8		L	14:08			130	

APRIL 20, 2007

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.

Friday, March 16, 2007

STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05080.Edd, h:\Reportdb\edd\FeadIV\Rad\34469.Edd

Lab Sample Id: JL8VJ1ER
Client Id: B1JL54
Moisture/Solids%*:

Sdg/Rept Nbr: W05080 I 34469
Matrix: WATER WATER
QC Type: DUP

Collection Date: 12/27/2006 12:12
Sample On Date:
Received Date: 12/27/2006

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
S06-007	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
7002229	H-3	1.63E+02	pCi/L	3.1E+01		6.04E+00	100.0		TRITIUM_ELE	1.50E-01	03/07/2007	1.0	0.1		D
DUP	10028-17-8	1.65E+02		1.1E+01						L	16:43	20.0	3		

APRIL 20, 2007

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.

APRIL 20, 2007

SEVERN TRENT STL 34469 Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

3/9/2007 12:52:14 PM

Lot No., Du: Date: J6L290143; 02/12/2007
Client, Site: 384868; PGW 615HANFORD HANFORD
QC Batch N ., Method Test: 7002229; RH3EE H3EE by LSC
SDG, Matri:: W05080; WATER

	Yes	No	N/A
1.0 COC			
1.1 Is the ICC C 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 C C appropriate for the analysis included in the batch?	✓		
2.3 Is the An lytical 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 & S mples			
3.1 Is the bla k results, yield, and MDA within contract limits?	✓		
3.2 Is the LC S result, yield, and MDA within contract limits?	✓		
3.3 Are the M S/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the d plicate result, yields, and MDAs within contract limits?	✓		
3.5 Are the s mple yields and MDAs within contract limits?	✓		
4.0 Raw Da a			
4.1 Were res lts calculated in the correct units?	✓		
4.2 Were ana ysis volumes entered correctly?	✓		
4.3 Were Yie ds entered correctly?	✓		
4.4 Were spe tra 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 re uired forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was tran cription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are work heet entries complete and correct?	✓		

6.0 Comment s on any No response:

First Level Review Angela Long Date 3/9/07

STL Richland
QAS_RADCALC v4.8.26
STL RICHLAND

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 700 2229
W05080

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: 3-13-07

STL RICHLAND

PNNL 06L-090143
WO 5080
Due 02 09 07

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S06-007-186

Page 1 of 1

Collector D. P. CONNOLLY	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. S06-007	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, JULY 2006	HNF-N-506-2	**Ice Chest No.** SHWS-209 **Temp.**
Shipped To (Lab) Severn Trent Incorporated, Richland	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 45 Days	**Offsite Property No.**

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 INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Batch all PNNL GW samples submitted under "W", "S", "T", "A" or "G" 06 SAFs into one SDG, not to exceed SDG closure of 14 days.
Submit invoices & deliverables to DL Stewart, PNNL

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1JL53		W	12-27-06	0705	1x20-mL P	Activity Scan	None
B1JL53		W	↓	↓	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1)	None
B1JL53		W	↓	↓	1x500-mL G/P	UTOT_KPA: Uranium (1)	HNO3 to pH <2
						JL8VL	

Relinquished By D. P. CONNOLLY	Print	Sign	Date/Time 1435 DEC 27 2006	Received By DAVID HARBINSON	Print	Sign	Date/Time 1435 DEC 27 2006
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

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

Matrix *

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

12

30

APRIL 20, 2007

PNNL JGL-2901-43
WO 5780
Due 02-09-07

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S06-007-187

Page 1 of 1

Collector: D. P. CONNOLLY

SAF No.: S06-007

Project Title: SURV, JULY 2006

Shipped To (Lab): Severn Trent Incorporated, Richland

Protocol: SURV

Contact/Requester: Dot Stewart

Sampling Origin: Hanford Site

HNF N-506 2

Method of Shipment: Govt. Vehicle

Priority: 45 Days

Telephone No.: 509-376-5056 MSIN FAX

Purchase Order/Charge Code

Ice Chest No.: SAWS-209 Temp.

Bill of Lading/Air Bill No.

Offsite Property No.

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 INSTRUCTIONS Hold Time

Total Activity Exemption: Yes ☑ No ☐

Batch all PNNL GW samples submitted under "W", "S", "I", "A" or "G" 06 SAFs into one SDG, not to exceed SDG closure of 14 days.

Submit invoices & deliverables to DL Stewart, PNNL

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1JL54		W	12-27-06	1212	1x20-mL P	Activity Scan	None
B1JL54		W			3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1)	None
B1JL54		W			1x500-mL G/P	UTOT_KPA: Uranium (1)	HNO3 to pH <2

CTL 8VJ

DP 12-27-06

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.P. CONNOLLY			14 JL DEC 27 2006	David HARBINSON			14 JL DEC 27 2006
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

SEVERN TRENT STL

Sample Checklist List

Date/Time Received 12.27.06 1435

Client: PGW SDG # W05080 NA ( ) SAF # S06 007 NA

Work Order Number: V6L290143 Chain of Custody # S06 007-120, 187, 186

Shipping Container ID: SAWS-209 Air Bill # N/A

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 3

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

8 Samples have:
____tape
____custody seals
____ [illegible]
✓ approximate samples [illegible]

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>5 ( )

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

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

13 Description of anomalies (include sample numbers): N/A

Sample Custodian: DH Date 12 27 06 1435

Client Sample ID	Analysis Requested	Condition	Comment/Action

Client Informed on _____ by _____ Person contacted _____

( ) No action necessary; process as is.

Project Manager _____ Date _____

[illegible] 9/03, Rev. 5

STL RICHLAND

1/2/2007 10:23:16 AM

Sample Preparation/Analysis

384868, Pacific Northwest National Laboratory ,
Pacific Northwest National Lab

AS H-3 Prp/SepRC5024
U3 Enriched Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id: 12424
Pipet #:

AnalyDueDate: 02/09/2007 WQ5080

Sep1 DT/Tm Tech: 2-21-07 DM

Batch: 7002229 **WATER** **pCi/L**
SEQ Batch, Test: None

PM, Quote: SA , 57671

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:
1 JL8VJ-1-AA J6L290143-2-SAMP 12/27/2006 12:12	AmtRec: 20ML,500MLP,3XLP	#Containers: 5		Scr:	Alpha:	Beta:		
2 JL8VJ-1-AE-X J6L290143-2-DUP 12/27/2006 12:12	AmtRec: 20ML,500MLP,3XLP	#Containers: 5		Scr:	Alpha:	Beta:		
3 JL8VL-1-AA J6L290143-3-SAMP 12/27/2006 07:05	AmtRec: 20ML,500MLP,3XLP	#Containers: 5		Scr:	Alpha:	Beta:		
4 JMAM3-1-AA-B J7A020000-229-BLK 12/27/2006 12:12	AmtRec:	#Containers: 1		Scr:	Alpha:	Beta:		
5 JMAM3-1-AC-C J7A020000-229-LCS 12/27/2006 12:12	AmtRec:	#Containers: 1		Scr:	Alpha:	Beta:		
6 JMAM3-1-AD-BN J7A020000-229-IBLK 12/27/2006 12:12	AmtRec:	#Containers: 1		Scr:	Alpha:	Beta:		

APRIL 20, 2007

Sample Preparation/Analysis

AS H-3 Prp/SepRC5024
U3 Enriched Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id: 12424
Pipet #:
Sep1 DT/Tm Tech: 2-21-07 DM
Sep2 DT/Tm Tech:
Prep Tech:

AnalyDueDate: 02/09/2007

Batch: 7002229 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:

Comments:

All Clients for Batch:
384868, Pacific Northwest National Laboratory Pacific Northwest National Lab, SA , 57671

JL8VJ1AA-SAMP Constituent List:
H-3 RDL:1.00E+01 pCi/L LCL:70 UCL:130 RPD:20
JMAM31AA-BLK:
H-3 RDL:1.00E+01 pCi/L LCL: UCL: RPD:
JMAM31AC-LCS:
H-3 RDL:10 pCi/L LCL:70 UCL:130 RPD:20
JMAM31AD-IBLK:
H-3 RDL:1.00E+01 pCi/L LCL: UCL: RPD:

JL8VJ1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMAM31AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMAM31AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JMAM31AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

STL RICHLAND
APRIL 20, 2007

APRIL 20, 2007

3/9/2007 12:51:31 PM

ICOC Fraction Transfer/Status Report

ByDate: 3/9/2006, 3/14/2007, Batch: '7002229', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7002229						
AC		CalcC	McDowellD	2/19/2007 11:33:07		
SC			wagarr	IsBatched	1/2/2007 10:25:47 AM	ICOC_RADCALC v4.8.26
SC			ICOC	IsRpt	2/13/2007 4:31:25 AM	ICOC_RADCALC v4.8.17
SC			McDowellD	InSep1	2/19/2007 11:33:07 AM	RICH-RC-5024 REVISION 2
SC			McDowellD	Sep1C	3/6/2007 2:27:42 PM	RICH-RC-5024 REVISION 2
SC			DAWKINSO	InCnt1	3/6/2007 2:55:04 PM	RICH-RD-0007 REVISION 5
SC			DAWKINSO	InCnt1	3/6/2007 2:55:27 PM	RICH-RD-0001 REVISION 3
SC			BlackCL	CalcC	3/8/2007 6:38:00 AM	RICH-RD-0001 REVISION 3
AC			McDowellD	2/22/2007 10:34:22		
AC			McDowellD	3/6/2007 2:27:42 PM		
AC			DAWKINSO	3/6/2007 2:55:04 PM		
AC			DAWKINSO	3/6/2007 2:55:27 PM		
AC			BlackCL	3/8/2007 6:38:00 AM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Page 1

Grp Rec Cnt: 6

ICOCFractions v4.8.26