W05074

21 pages

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 20 *Pages*

Report Nbr: 33964

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05074	S07-011	B1LBH5	J6L010304-1	JKNGA1AA	9JKNGA10	6338438

Comments:

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

December 15, 2006

Attention: Dot Stewart

SAF Number	:	S07-011
Date SDG Closed	:	December 1, 2006
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W05074
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On December 1, 2006 one water sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was 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
B1FV90	HTJQ1	WATER	10/20/06

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:

Liquid Scintillation Counting
Tritium by method RICH-RC-5007

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

Tritium by method RICH-RC-5007:
The LCS, batch blank, samples and sample duplicate (B1LBH5) 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.

12/15/2006 1:48:29 PM

STL Richland Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **Version:** 05 **Rpt Nbr:** 33964 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05074.Edd, h:\Reportdb\edd\FeadIV\Rad\33964.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:
9JKNGA10	B1LBH5		MW6-SBB-A1	S07-011	W05074					12/01/2006 10:22

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6338438	H-3	10028-17-8	1.37E+04	pCi/L	4.5E+02	6.3E+02		3.68E+02	100.0	906.0_H3_LSC	5.00E-03	L	12/14/2006 04:20	I

Friday, December 15, 2006

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05074.Edd, h:\Reportdb\edd\FeadIV\Rad\33964.Edd

Lab Sample Id: JKQ421AB **Sdg/Rept Nbr:** W05074 33964 **Collection Date:** 12/01/2006 10:22
Client Id: NA **Matrix:** WATER WATER **Sample On Date:**
Moisture/Solids%*: **QC Type:** BLK **Received Date:** 12/01/2006

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	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
6338438	H-3	-8.82E+00	pCi/L	1.6E+02	U	3.67E+02	100.0		906.0_H3_LSC	5.00E-03	12/13/2006				D
BLK	10028-17-8			1.5E+02						L	22:50				

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, December 15, 2006

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05074.Edd, h:\Reportdb\edd\FeadIV\Rad\33964.Edd

Lab Sample Id:	JKQ421DX	**Sdg/Rept Nbr:**	W05074	33964	**Collection Date:** 12/01/2006 10:22
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BLK		**Received Date:** 12/01/2006

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
6338438	H-3	2.86E+02	pCi/L	1.8E+02	U	3.81E+02	100.0		906.0_H3_LSC	5.00E-03	12/14/2006				D
BLK	10028-17-8			1.7E+02						L	01:35				

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, December 15, 2006

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05074.Edd, h:\Reportdb\edd\FeadIV\Rad\33964.Edd

Lab Sample Id:	JKQ421CS	**Sdg/Rept Nbr:**	W05074	33964	**Collection Date:** 12/01/2006 10:22
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BS		**Received Date:** 12/01/2006

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
6338438	H-3	2.51E+03	pCi/L	2.6E+02		3.68E+02	100.0	2.71E+03	906.0_H3_LSC	5.00E-03	12/14/2006			70	D
BS	10028-17-8			2.4E+02				92.5		L	00:12			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.

Friday, December 15, 2006

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05074.Edd, h:\Reportdb\edd\FeadIV\Rad\33964.Edd

Lab Sample Id: JKQ421EM **Sdg/Rept Nbr:** W05074 33964 **Collection Date:** 12/01/2006 10:22

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

Moisture/Solids%*: **QC Type:** BS **Received Date:** 12/01/2006

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
6338438	H-3	2.84E+03	pCi/L	2.8E+02		3.82E+02	100.0	2.71E+03	906.0_H3_LSC	5.00E-03	12/14/2006			70	D
BS	10028-17-8			2.5E+02				104.9		L	02:58			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.

Friday, December 15, 2006

STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05074.Edd, h:\Reportdb\edd\FeadIV\Rad\33964.Edd

Lab Sample Id:	JKNGA1CR	**Sdg/Rept Nbr:**	W05074	33964	**Collection Date:** 12/01/2006 10:22
Client Id:	B1LBH5	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	DUP		**Received Date:** 12/01/2006

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
S07-011	MW6-SBB-A19981								AB	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
6338438	H-3	1.33E+04	pCi/L	6.2E+02		3.67E+02	100.0		906.0_H3_LSC	5.00E-03	12/14/2006	2.4	0.7		D
DUP	10028-17-8	1.37E+04		4.5E+02						L	05:43	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.

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

12/15/2006 8:46:23 AM

Lot No., Due Date: J6L010304; 12/15/2006

Client, Site: 384868; PGW 615HANFORD HANFORD

QC Batch No., Method Test: 6338438; RTRITIUM H-3 by LSC

SDG, Matrix: W05074; 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 OK	✓		
8.07 The Correct Count Geometry was Used. Count Geometry => JKQ421AF SVP15/5<>SVP10/10 JKQ421AG SVP15/5<>SVP10/10 OK JKQ421AA SVP15/5<>SVP10/10 JKQ421AC SVP15/5<>SVP10/10 PA 12.15.06 JKQ421AD SVP15/5<>SVP10/10 JKQ421AE SVP15/5<>SVP10/10 JKNGA1AA SVP15/5<>SVP10/10 JKNGA1AC SVP15/5<>SVP10/10 Q:VC		✓	
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. OK (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. Yes ✓ No N/A
OK

8.25 Counting Spectrum are within FWHM Limits. Yes No N/A ✓
No FWHM found in Batch Data!

8.26 Instruments have Current Calibrations. Yes No N/A

8.27 Correct Count Library Used. Yes No N/A ✓
No Count Library found in Batch Data!

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. Yes ✓ No N/A
OK

First Level Review Pam Anderson **Date** 12-15-06

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 6338438

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: Joan Ga Date: 12/15/06

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

STL RICHLAND

PNNL 16101C304
W0507#4 $5 $1400
Due 12-15-06

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S07-011-423

Page 1 of 1

Collector Fluor Hanford K. J. YOUNG	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. S07-011	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, NOVEMBER 2006	HNF-N-506-4	**Ice Chest No.** SAWS114 **Temp.**
Shipped To (Lab) Severn Trent Incorporated, Richland	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 15 Days **PRIORITY**	**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 ☐
All Labs except WSCF: Batch all PNNL samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all PNNL GW samples submitted into one SDG, daily closure.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1LBH5		W	12-1-06	1022	1x1000-mL P	906.0_H3_LSC: Tritium (1)	None
B1LBH5		W	↓	↓	1x20-mL P	Activity Scan	None
						JKNGA	

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Fluor Hanford K. J. YOUNG			DEC 01 2006 1503				DEC 01 2006 1503
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 Check-in List

Date/Time Received: 12-01-06 15:03

Client: PGW SDG #: W0507[illegible]4 NA [ ] SAF #: 507-011 NA [ ]

SKSD/4/06

Work Order Number: UGL010304 Chain of Custody # 507-011-423

Shipping Container ID: SAWS-115 Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: _____ NA [X] 5. Vermiculite/packing materials is NA [X] Wet [ ] Dry [ ]
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? NA [X] Yes [ ] No [ ]
8. Samples have:
   - _____ tape
   - _____ custody seals
   - _____ hazard labels
   - X appropriate samples labels
9. Samples are:
   - X in good condition
   - _____ broken
   - _____ leaking
   - _____ have air bubbles

   (Only for samples requiring head space)
10. Sample pH taken? NA [ ] pH<2 [ ] pH>2 [X] pH>9 [ ]
11. Sample Location, Sample Collector Listed? * Yes [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): N/A

Sample Custodian: L. Smith Date: 12-01-06 15:03

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/03, Rev. 5

STL RICHLAND

12/4/2006 1:37:05 PM

Sample Preparation/Analysis

384868, Pacific Northwest National Laboratory ,
Pacific Northwest National Lab

AnalyDueDate: 12/15/2006 WO#5074

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

PRIORITY

Batch: 6338438 **WATER** pCi/L
SEQ Batch, Test: None

RW 12/4/06

PM, Quote: SA , 57671

Balance Id: 5495
Pipet #:
Sep1 DT/Tm Tech: 12-13-06 am
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 JKNGA-1-AA J6L010304-1-SAMP 12/01/2006 10:22		AmtRec: 20ML,LP	#Containers: 2			Scr:	Alpha:	Beta:
2 JKNGA-1-AC-X J6L010304-1-DUP 12/01/2006 10:22		AmtRec: 20ML,LP	#Containers: 2			Scr:	Alpha:	Beta:
3 JKQ42-1-AA-B J6L040000-438-BLK 12/01/2006 10:22		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
4 JKQ42-1-AC-C J6L040000-438-LCS 12/01/2006 10:22		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
5 JKQ42-1-AD-BX J6L040000-438-MBLK 12/01/2006 10:22		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
6 JKQ42-1-AE-CM J6L040000-438-MLCS 12/01/2006 10:22		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
7 JKQ42-1-AF-BN J6L040000-438-IBLK 12/01/2006 10:22		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

12/4/2006 1:37:07 PM

Sample Preparation/Analysis

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

Balance Id: 12445
Pipet #:

AnalyDueDate: 12/15/2006

Sep1 DT/Tm Tech: 12-13-06 DMK

Batch: 6338438 pCi/L
SEQ Batch, Test: None

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:
8 JKQ42-1-AG-BN J6L040000-438-IBLK 12/01/2006 10:22	AmtRec:	#Containers: 1				Scr:	Alpha:	Beta:

Comments:

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

JKNGA1AA-SAMP Constituent List:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
JKQ421AA-BLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:
JKQ421AC-LCS:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
JKQ421AD-MBLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:
JKQ421AE-MLCS:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
JKQ421AF-IBLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:
JKQ421AG-IBLK:
H-3 RDL:400 pCi/L LCL: UCL: RPD:

JKNGA1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JKQ421AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JKQ421AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JKQ421AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JKQ421AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JKQ421AF-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

12/4/2006 1:37:07 PM

Sample Preparation/Analysis

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

AnalyDueDate: 12/15/2006

Batch: 6338438 pCi/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:

JKQ421AG-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

12/15/2006 8:44:15 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/15/2005, 12/20/2006, Batch: '6338438', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
6338438							
AC			**CalcC**	**McDowellD**	12/13/2006 11:16:36		
SC				wagarr	IsBatched	12/4/2006 1:37:40 PM	ICOC_RADCALC v4.8.26
SC				McDowellD	InSep1	12/13/2006 11:16:36 AM	RICH-RC-5007 REVISION 6
SC				McDowellD	Sep1C	12/13/2006 1:47:01 PM	RICH-RC-5007 REVISION 6
SC				DAWKINSO	InCnt1	12/13/2006 2:02:15 PM	RICH-RD-0001 REVISION 3
SC				StringerR	CalcC	12/14/2006 8:22:01 AM	RICH-RD-0001 REVISION 3
AC				**McDowellD**	12/13/2006 1:47:01		
AC				**DAWKINSO**	12/13/2006 2:02:15		
AC				**StringerR**	12/14/2006 8:22:01		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.8.26