

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: 33484

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W04970I	S06-007	B1JL17	J6G240185-1	H9WWV1A	9H9WWV10	6207519
		B1JL19	J6G240185-2	H9WWV1A	9H9WWV10	6207519
		B1JL20	J6G240185-3	H9WWX1A	9H9WWX10	6207519
		B1JLD3	J6G250319-1	H901Q1AF	9H901Q10	6207519
		B1JLD2	J6G250319-2	H90121AF	9H901210	6207519

*Dayes
5/15/12*

Comments:

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

October 13, 2006

Attention: Dot Stewart

SAF Number	:	S06-007
Date SDG Closed	:	July 25, 2006
Number of Samples	:	Five (5)
Sample Type	:	Water
SDG Number	:	W04970I
Data Deliverable	:	45-Day / Summary

CASE NARRATIVE

I. Introduction

Between July 24, 2006 and July 25, 2006, five 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:

<u>PGW ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
B1JL17	H9WWV	WATER	7/24/06
B1JL19	H9WWW	WATER	7/24/06
B1JL20	H9WWX	WATER	7/24/06
B1JLD3	H901Q	WATER	7/25/06
B1JLD2	H9012	WATER	7/25/06

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:

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.

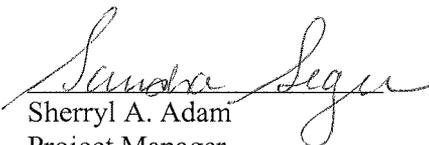
V. Comments

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

The LCS, batch blank, samples and sample duplicate (B1JL17) 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:


for 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, $R = \text{constants} * f(x,y,z,\dots)$. 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/\sqrt{n}), 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) <i>u_c Combined Uncertainty.</i>	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, <i>u_c the combined uncertainty</i> . 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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgrndCnt} / \text{BkgrndCntMin}) / \text{SCntMin})) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. 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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgrndCnt} / \text{BkgrndCntMin}) / \text{SCntMin}) + 2.71 / \text{SCntMin}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. 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/TotUncert	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 = $(S-D) / [\text{sqrt}(TPUs^2 + TPuD^2)]$ 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.

10/13/2006 1:13:00 PM

STL Richland Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD Version: 05 Rpt Nbr: 33484 File Name: h:\Reportdb\edd\FeadIV\Rad\W04970.Edd, h:\Reportdb\edd\FeadIV\Rad\33484.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:				
9H901210	B1JLD2		MW6-SBB-A1	S06-007	W04970					07/25/2006 10:01				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6207519	H-3	10028-17-8	4.38E+00	pCi/L	4.1E+00	6.3E+00	U	6.17E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	10/07/2006 06:51	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:				
9H901Q10	B1JLD3		MW6-SBB-A1	S06-007	W04970					07/25/2006 10:01				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6207519	H-3	10028-17-8	8.04E+00	pCi/L	4.6E+00	6.8E+00		6.14E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	10/07/2006 05:33	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:				
9H9WV10	B1JL17		MW6-SBB-A1	S06-007	W04970					07/24/2006 12:08				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6207519	H-3	10028-17-8	6.64E+01	pCi/L	7.8E+00	1.5E+01		6.11E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	10/07/2006 00:22	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:				
9H9WV11	B1JL19		MW6-SBB-A1	S06-007	W04970					07/24/2006 10:41				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6207519	H-3	10028-17-8	1.47E+02	pCi/L	1.0E+01	2.8E+01		6.14E+00	100.0	TRITIUM_ELECT_L	1.5001E-01	L	10/07/2006 02:58	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:				
9H9WV10	B1JL20		MW6-SBB-A1	S06-007	W04970					07/24/2006 08:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6207519	H-3	10028-17-8	4.09E+01	pCi/L	6.5E+00	1.1E+01		6.09E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	10/07/2006 04:15	I

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.

Friday, October 13, 2006

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\ledd\Fead\W04970.Edd, h:\Reportdb\ledd\Fead\W04970.Edd, h:\Reportdb\ledd\Fead\W04970.Edd, h:\Reportdb\ledd\Fead\W04970.Edd

Lab Sample Id: H93FF1AB

Sdg/Rept Nbr: W04970

33484

Collection Date: 07/24/2006 12:08

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%*:

QC Type: BLK

Received Date: 07/24/2006

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
6207519 BLK	H-3 10028-17-8	5.27E+00	pCi/L	6.6E+00 4.5E+00	U	6.13E+00	100.0		TRITIUM_ELE	1.50E-01 L	10/06/2006 21:47				D

Friday, October 13, 2006

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\I\Rad\W04970.Edd, h:\Reportdb\edd\Fead\I\Rad\33484.Edd

Lab Sample Id: H93FF1CS

Sdg/Rept Nbr: W04970

33484

Collection Date: 07/24/2006 12:08

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%*:

QC Type: BS

Received Date: 07/24/2006

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
6207519 BS	H-3 10028-17-8	4.38E+02	pCi/L	7.7E+01 1.7E+01		6.10E+00	100.0	4.49E+02 97.4	TRITIUM_ELE	1.5001E-01 L	10/06/2006 23:05			70 130	D

Friday, October 13, 2006

STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\VRad\W04970.Edd, h:\Reportdb\edd\Fead\VRad\33484.Edd

Lab Sample Id: H9WWV1CR

Sdg/Rept Nbr: W04970

33484

Collection Date: 07/24/2006 12:08

Client Id: B1JL17

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%*:

QC Type: DUP

Received Date: 07/24/2006

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
S06-007	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
6207519 DUP	H-3 10028-17-8	5.30E+01 6.64E+01	pCi/L	1.3E+01 7.2E+00		6.13E+00	100.0		TRITIUM_ELE	1.5001E-01 L	10/07/2006 01:40	22.4 20.0	1.5 3		D

Lot No., Due Date: J6G250319,J6G240185; 09/08/2006
 Client, Site: 384868; PGW 615HANFORD HANFORD
 QC Batch No., Method Test: 6207519; RH3EE H3EE by LSC
 SDG, Matrix: W04970; 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:

10-08802

First Level Review Pam Anderson

Date 10.10.06



STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 6207519
W04970

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: See NCM

Second Level Review: Sheryl A Adams Date: 10-11-06

Clouseau Nonconformance Memo



NCM #: 10-08802	Classification: Anomaly
NCM Initiated By: Pam Anderson	Status: GLREVIEW
Date Opened: 10/10/2006	Production Area: Environmental - Sep
Date Closed:	Tests: H3EE by LSC
	Lot #'s (Sample #'s): J6G240185 (1),
	QC Batches: 6207519
Nonconformance: Dups not within acceptance limits	
Subcategory: Other (explanation required)	

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	10/10/2006	The enriched tritium duplicate is out of limits at 22 % RPD. The RER is 1.3, well within our acceptance limits. Data will be accepted.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	10/10/2006	None at this time.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

PNNL <i>JL6624085</i> <i>W04970</i>	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S06-007-2
		Page 1 of 1

Collector DURATEK R. R. FOX	Contact/Requester Dot Stewart	Telephone No. 509-376-5056
SAF No. S06-007	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV JULY 2006	Method of Shipment Govt. Vehicle	Ice Chest No. <i>6RP-03-009</i>
Shipped To (Lab) Severn Trent Incorporated, Richland	Priority: 45 Days	Bill of Lading/Air Bill No.
Protocol SURV	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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.
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1JL17		W	<i>7/24/06</i>	<i>1208</i>	1x20-mL P	Activity Scan	None
B1JL17		W	↓	↓	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1) <i>H9WUV</i>	None
<div style="font-size: 2em; opacity: 0.5; transform: rotate(-45deg); position: absolute; top: 50%; left: 50%;"> <i>R. Wald</i> <i>7/24/06</i> </div>							

Relinquished By DURATEK R. R. FOX	Print <i>[Signature]</i> Sign	Date/Time <i>1345</i> JUL 24 2006	Received By <i>S. Welch</i>	Print <i>[Signature]</i> Sign	Date/Time <i>1345</i> JUL 24 2006	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge W1 = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
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		

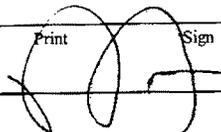
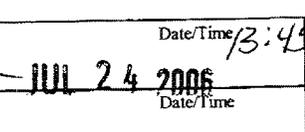
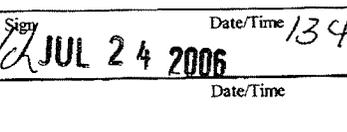
PNNL J66240185
WD4970 Due 9706

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S06-007-54**
Page 1 of 1

Collector DURATEK R. R. FOX	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	Logbook: DTS-SAWS-H109	Ice Chest No. GRP-03-009	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 ** **		SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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
B1JL19		W	7/24/06	1041	1x20-mL P	Activity Scan	None
B1JL19		W	↓	↓	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1) H9WWU	None
<i>ok well 7/24/06</i>							

Relinquished By DURATEK R. R. FOX	Print 	Sign 	Date/Time JUL 24 2006 13:45	Received By J. Welch	Print S. Welch	Sign 	Date/Time JUL 24 2006 1345	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	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

Collector DURATEK R. R. FOX	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	<i>Logbook: SRP DTS-SAWS-H109</i>	Ice Chest No. <i>6RP-03-004</i>	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
 ** **

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
B1JL20		W	<i>7/24/06</i>	<i>0830</i>	1x20-mL P	Activity Scan	None
B1JL20		W	<i>↓</i>	<i>↓</i>	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1) <i>H9WUX</i>	None
<i>P. Welch 7/24/06</i>							

Relinquished By DURATEK R. R. FOX	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time JUL 24 2006	13:45	Received By <i>S. Welch</i>	Print <i>S. Welch</i>	Sign <i>[Signature]</i>	Date/Time JUL 24 2006	13:45	Matrix *
Relinquished By	Date/Time	Received By	Date/Time		Relinquished By	Date/Time	Received By	Date/Time		S = Soil DS = Drum Solid SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Date/Time	Received By	Date/Time		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		



STL

Sample Check-in List

Date/Time Received: 7-24-06 13:45
 Client: PGW SDG #: W04970 NA SAF #: 506-007 NA
 Work Order Number: 566240185 SW Chain of Custody # 506-007-2, 54, 55
 Shipping Container ID: 566240185 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 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 _____ hazard labels _____ appropriate samples labels
9. Samples are: _____ in good condition _____ broken _____ leaking _____ have air bubbles (Only for samples requiring head space) _____ adjusted pH
10. Sample pH taken? NA pH < 2 pH > 2
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: S. Welch Date: 7-24-06 13:45

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____
 No action necessary; process as is.
 Project Manager _____ Date _____

PNNL J6G250319 W04970 Jul 9-8-06	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S06-007-73 Page 1 of 1
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Collector R.T. SICKLE	Contact/Requester Dot Stewart	Telephone No. MSIN FAX 509-376-5056
SAF No. S06-007	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV. JULY 2006	DTS-SAWS-H106	Ice Chest No. SML595 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 ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative	
B1JLD3		W	7-25-06	1001	1x20-mL P	Activity Scan	None	
B1JLD3		W	↓	↓	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1)	None	
B1JLD3		W			1x1000-mL P	9310_ALPHABETA_GPC: Alpha + Beta (2)	H901Q	HNO3 to pH <2
B1JLD3		W			2x4000-mL G/P	1129LL_SEP_LEPS_GS_LL: I-129 (1)		None
B1JLD3		W			1x4000-mL G/P	GAMMALL_GS: List-1 (9)		HNO3 to pH <2
B1JLD3		W			1x1000-mL G/P	UIISO_PLATE_AEA: List-1 (3)		HNO3 to pH <2

Relinquished By R.T. SICKLE	Print 	Date/Time JUL 25 2006	Received By 	Print S. Welch	Date/Time JUL 25 2006	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
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	

PNNL J66250319 W04970 Due 9-8-06	<h2 style="margin: 0;">CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</h2>	C.O.C. # <h3 style="margin: 0;">S06-007-72</h3>
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester Dot Stewart	Telephone No. MSIN FAX 509-376-5056
SAF No. S06-007	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV. JULY 2006	Method of Shipment Govt. Vehicle	Ice Chest No. <i>SML-595</i> Temp.
Shipped To (Lab) Severn Trent Incorporated, Richland	Priority: 45 Days	Bill of Lading/Air Bill No.
Protocol SURV		Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1JLD2		W	7-25-06	1001	1x20-mL P	Activity Scan	None
B1JLD2		W			3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1)	None
B1JLD2		W			1x1000-mL P	9310_ALPHABETA_GPC: Alpha + Beta (2) <i>H9012</i>	HNO3 to pH <2
B1JLD2		W			2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None
B1JLD2		W			1x4000-mL G/P	GAMMALL_GS: List-1 (9)	HNO3 to pH <2
B1JLD2		W			1x1000-mL G/P	UIISO_PLATE_AEA: List-1 (3)	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print <i>[Signature]</i> Sign	Date/Time JUL 25 2006	Received By <i>S. Welch</i>	Print Sign <i>S. Welch</i>	Date/Time JUL 25 2006	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	
Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	
Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time	



STL

Sample Check-in List

Date/Time Received: 7.25.06 14:20

Client: FSW

SDG #: W04970 NA SAF #: 506-007 NA

Work Order Number: V6-250319

Chain of Custody # 506-007-73, 72

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? NA Yes No
4. Cooler temperature: _____ NA 5. Vermiculite/packing materials is NA Wet Dry
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA Yes No
8. Samples have:
 - _____ tape
 - _____ custody seals
9. Samples are:
 - in good condition
 - _____ broken
10. Sample pH taken? NA pH < 2 pH > 2 adjusted pH
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): _____

Sample Custodian: S. Welch Date: 7.25.06 14:20

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[] No action necessary; process as is.

Project Manager _____ Date _____

7/26/2006 4:06:23 PM

Sample Preparation/Analysis

Balance Id: *13424*

384868, Pacific Northwest National Laboratory
Pacific Northwest National Lab

AS H-3 Prp/SepRC5024
U3 Enriched Tritium by Liquid Scint

Pipet #: _____

AnalyDueDate: 09/07/2006 *W0497*

5I CLIENT: HANFORD

Sep1 DT/Tm Tech: *9-13-06 pm*

Batch: 6207519 WATER pCi/L

PM, Quote: HC , 57671

Sep2 DT/Tm Tech: _____

SEQ Batch, Test: None

Prep Tech: _____



Work Order, Lot, Sample Date/Time	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:
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1 H9WWV-1-AA								
J6G240185-1-SAMP								
07/24/2006 12:08		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha:	Beta:

2 H9WWV-1-AC-X								
J6G240185-1-DUP								
07/24/2006 12:08		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha:	Beta:

3 H9WWV-1-AA								
J6G240185-2-SAMP								
07/24/2006 10:41		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha:	Beta:

4 H9WWX-1-AA								
J6G240185-3-SAMP								
07/24/2006 08:30		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha:	Beta:

5 H901Q-1-AF								
J6G250319-1-SAMP								
07/25/2006 10:01		AmtRec: 20ML,5XLP,3X4LP	#Containers: 9			Scr:	Alpha:	Beta:

6 H9012-1-AF								
J6G250319-2-SAMP								
07/25/2006 10:01		AmtRec: 20ML,5XLP,3X4LP	#Containers: 9			Scr:	Alpha:	Beta:

7 H93FF-1-AA-B								
J6G260000-519-BLK								
07/24/2006 12:08		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

7/26/2006 4:06:24 PM

Sample Preparation/Analysis

Balance Id: 12424

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

Pipet #: _____

AnalyDueDate: 09/07/2006

Sep1 DT/Tm Tech: 9-13-06 pm

Batch: 6207519
SEQ Batch, Test: None

pCi/L

Sep2 DT/Tm Tech: _____

Prep Tech: _____



Work Order, Lot, Sample Date/Time	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:
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8 H93FF-1-AC-C

J6G260000-519-LCS



07/24/2006 12:08

AmtRec:

#Containers: 1

Scr:

Alpha:

Beta:

9 H93FF-1-AD-BN

J6G260000-519-IBLK



07/24/2006 12:08

AmtRec:

#Containers: 1

Scr:

Alpha:

Beta:

Comments:

All Clients for Batch:

384868, Pacific Northwest National Laboratory Pacific Northwest National Lab, HC , 57671

H9WWV1AA-SAMP Constituent List:

H-3	RDL:1.00E+01	pCi/L	LCL:70	UCL:130	RPD:20
H93FF1AA-BLK:					
H-3	RDL:1.00E+01	pCi/L	LCL:	UCL:	RPD:
H93FF1AC-LCS:					
H-3	RDL:10	pCi/L	LCL:70	UCL:130	RPD:20
H93FF1AD-IBLK:					
H-3	RDL:1.00E+01	pCi/L	LCL:	UCL:	RPD:

H9WWV1AA-SAMP Calc Info:

Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
H93FF1AA-BLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
H93FF1AC-LCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
H93FF1AD-IBLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

Approved By _____

Date: _____

ICOC Fraction Transfer/Status Report

ByDate: 10/10/2005, 10/15/2006, Batch: '6207519', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
6207519				
AC		CalcC	McDowellID 9/6/2006 9:57:04 AM	
SC		wagarr	IsBatched 7/26/2006 4:08:34 PM	ICOC_RADCALC v4.8.24
SC		McDowellID	InPrep 9/6/2006 9:57:04 AM	RICH-RC-5024 REVISION 2
SC		ICOC	IsRpt 9/9/2006 4:33:00 AM	ICOC_RADCALC v4.8.17
SC		McDowellID	InSep1 9/13/2006 8:54:15 AM	RICH-RC-5024 REVISION 2
SC		McDowellID	Sep1C 10/6/2006 1:09:03 PM	RICH-RC-5024 REVISION 2
SC		BlackCL	InCnt1 10/6/2006 2:08:57 PM	RICH-RD-0001 REVISION 3
SC		BlackCL	CalcC 10/7/2006 12:23:47 PM	RICH-RD-0004 REVISION 3
AC		McDowellID	9/13/2006 8:54:15	
AC		McDowellID	10/6/2006 1:09:03 PM	
AC		BlackCL	10/6/2006 2:08:57 PM	
AC		BlackCL	10/7/2006 12:23:47	

AC: Accepting Entry; SC: Status Change