Analytical Data Package Prepared For

Pacific Northwest National Lab

Radiochemical Analysis By

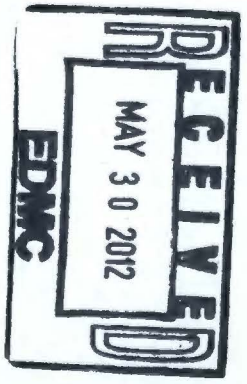
STL Richland STLRL

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

Data Package Contains _____ Pages

Report Nbr: 32691

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W04933	X06-035	B1J631	J6E240239-1	H53T51AA	9H53T510	6163472
		B1J632	J6E240239-2	H53T71AA	9H53T710	6163472
		B1J633	J6E240239-3	H53VF1AA	9H53VF10	6163472
		B1J634	J6E240239-4	H53VJ1AA	9H53VJ10	6163472
		B1J635	J6E240239-5	H53VM1AA	9H53VM10	6163472
		B1J636	J6E240239-6	H53VQ1AA	9H53VQ10	6163472



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

July 18, 2006

Attention: Dot Stewart

SAF Number	:	X06-035
Date SDG Closed	:	June 6, 2006
Number of Samples	:	Six (6)
Sample Type	:	Water
SDG Number	:	W04933
Data Deliverable	:	45-Day / Summary

CASE NARRATIVE

I. Introduction

On May 23, 2006, six 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#	MATRIX	DATE OF RECEIPT
B1J631	H53T5	WATER	5/23/06
B1J632	H53T7	WATER	5/23/06
B1J633	H53VF	WATER	5/23/06
B1J634	H53VJ	WATER	5/23/06
B1J635	H53VM	WATER	5/23/06
B1J636	H53VQ	WATER	5/23/06

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.

Pacific Northwest National Laboratories
July 18, 2006

The requested analyses were:

Gamma Spectroscopy
Iodine-129 (LL) by method RICH-RC-5025

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

Iodine-129 (LL) by method RICH-RC-5025:
The LCS, batch blank, samples and sample duplicate (B1J631) 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 Segan

Sherryl A. Adam
Project Manager

for

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: 32691 File Name: h:\Reportdb\edd\FeadIV\Rad\W04933.Edd, h:\Reportdb\edd\FeadIV\Rad\32691.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:
9H53T510	B1J631		MW6-SBB-A1	X06-035	W04933					05/23/2006 10:30

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6163472	I-129L	15046-84-1	1.34E+00	pCi/L	3.2E-01	3.2E-01	U	5.95E-01	94.3	I129LL_SEP_LEPS	3.735E+00	L	07/06/200 14:01	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:
9H53T710	B1J632		MW6-SBB-A1	X06-035	W04933					05/23/2006 10:30

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6163472	I-129L	15046-84-1	8.85E-01	pCi/L	3.0E-01	3.0E-01	U	5.13E-01	96.8	I129LL_SEP_LEPS	3.8965E+00	L	07/06/200 14:01	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:
9H53VF10	B1J633		MW6-SBB-A1	X06-035	W04933					05/23/2006 10:30

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6163472	I-129L	15046-84-1	1.31E+00	pCi/L	3.1E-01	3.1E-01	U	5.69E-01	95.9	I129LL_SEP_LEPS	3.9936E+00	L	07/06/200 15:49	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:
9H53VJ10	B1J634		MW6-SBB-A1	X06-035	W04933					05/23/2006 10:30

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6163472	I-129L	15046-84-1	5.15E+00	pCi/L	7.9E-01	7.9E-01		3.03E-01	94.3	I129LL_SEP_LEPS	3.9785E+00	L	07/06/200 15:50	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:
9H53VM10	B1J635		MW6-SBB-A1	X06-035	W04933					05/23/2006 10:30

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6163472	I-129L	15046-84-1	4.95E+00	pCi/L	7.4E-01	7.4E-01		2.74E-01	97.3	I129LL_SEP_LEPS	3.9389E+00	L	07/06/200 15:50	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:
9H53VQ10	B1J636		MW6-SBB-A1	X06-035	W04933					05/23/2006 10:30

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
6163472	I-129L	15046-84-1	4.89E+00	pCi/L	6.9E-01	6.9E-01		3.25E-01	98.4	I129LL_SEP_LEPS	3.9776E+00	L	07/06/200 18:31	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.

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04933.Edd, h:\Reportdb\edd\FeadIV\Rad\32691.Edd

Lab Sample Id:	H68KV1AB	**Sdg/Rept Nbr:**	W04933	32691	**Collection Date:** 05/23/2006 10:30
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BLK		**Received Date:** 05/23/2006

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
6163472	I-129L	-5.58E-02	pCi/L	1.4E-01	U	2.35E-01	96.5		I129LL_SEP_L	3.9959E+00	07/06/2006				D
BLK	15046-84-1			1.4E-01						L	18:32				

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\W04933.Edd, h:\Reportdb\edd\FeadIV\Rad\32691.Edd

Lab Sample Id:	H68KV1CS	**Sdg/Rept Nbr:**	W04933	32691	**Collection Date:** 05/23/2006 10:30
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BS		**Received Date:** 05/23/2006

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
6163472	I-129L	8.98E+00	pCi/L	1.2E+00		3.44E-01	97.5	9.69E+00	I129LL_SEP_L	4.0058E+00	07/06/2006			70	D
BS	15046-84-1			1.2E+00				92.6		L	18:32			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 Duplicate Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W04933.Edd, h:\Reportdb\edd\FeadIV\Rad\32691.Edd

Lab Sample Id:	H53T51CR	**Sdg/Rept Nbr:**	W04933	32691	**Collection Date:** 05/23/2006 10:30
Client Id:	B1J631	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	DUP		**Received Date:** 05/23/2006

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
X06-035	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
6163472	I-129L	1.12E+00	pCi/L	4.4E-01		3.17E-01	93.8		I129LL_SEP_L	3.7163E+00	07/06/2006	17.9	0.7		D
DUP	15046-84-1	1.34E+00		4.4E-01						L	14:01	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

7/7/2006 2:58:38 PM

Lot No., Due Date: J6E240239; 07/21/2006

Client, Site: 384868; PGW 615HANFORD HANFORD

QC Batch No., Method Test: 6163472; RGAMLEPS Gamma by LEPS

SDG, Matrix: W04933; WATER

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

6.0 Comments on any No response:

First Level Review Pam Anderson **Date** 7-7-06

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 6163472

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Sheryl A Adam Date: 7-10-06

PNNL J6E240239
W04933
Due 7-7-06

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X06-035-23

Page 1 of 1

Collector DURATEK J. G. HOGAN	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. X06-035	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SPECIAL SAMPLING, APRIL 2006	DTS-SAWS-H103B	**Ice Chest No.** GRP-03-014 **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 samples submitted under this X SAF 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
B1J631		W	5-23-06	1030	1x20-mL P	Activity Scan H53T5	None
B1J631		W	↓	↓	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK J. G. HOGAN	J G Hogan		MAY 23 2006 14:35	S Welch	S. Welch		5-23-06 14:35
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 = Wipe	
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

PNNL J6E240239

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X06-035-24

Page 1 of 1

Collector DURATEK J. G. HOGAN	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. X06-035	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SPECIAL SAMPLING, APRIL 2006	DTS-SAWS-H103B	**Ice Chest No.** GRP03-014 **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 samples submitted under this X SAF 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
B1J632		W	5-23-06	1030	1x20-mL P	Activity Scan H53T7	None
B1J632		W	↓	↓	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK J. G. HOGAN	J. G. Hogan	J. G. Hogan	MAY 23 2006 1439	S. Welch	S. Welch	S. Welch	5-23-06 1435
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

PNNL J6E240239

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X06-035-25

Page 1 of 1

Collector DURATEK J. G. HOGAN	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. X06-035	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SPECIAL SAMPLING, APRIL 2006	DTS-SAWS-H103B	**Ice Chest No.** SAWS 108 **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 samples submitted under this X SAF 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
B1J633		W	5-23-06	1030	1x20-mL P	Activity Scan H53VF	None
B1J633		W	"	"	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None

	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By DURATEK J. G. HOGAN	J. G. Hogan	J. G. Hogan	MAY 23 2006 1435	S. Welch	S. Welch	S. Welch	5-23-06 1435
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 = Wipe	
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

PNNL J6E240239

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X06-035-26

Page 1 of 1

Collector DURATEK J. G. HOGAN	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. X06-035	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SPECIAL SAMPLING, APRIL 2006	DTS-SAWS-H103B	**Ice Chest No.** SAWS 108 **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 samples submitted under this X SAF 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
B1J634		W	5-23-06	1030	1x20-mL P	Activity Scan H53VJ	None
B1J634		W	↓	↓	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK J. G. HOGAN	J. G. Hogan	J. G. Hogan	MAY 23 2006 14:35	S. Welch	S. Welch	S. Welch	5-23-06 14:35
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

PNNL J6E240239

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X06-035-27

Page 1 of 1

Collector DURATEK J. G. HOGAN	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. X06-035	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SPECIAL SAMPLING, APRIL 2006	DTS-SAWS-H103B	**Ice Chest No.** SAWS 108 **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 samples submitted under this X SAF 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
B1J635		W	5-23-06	1030	1x20-mL P	Activity Scan H53 VM	None
B1J635		W	↓	↓	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK J. G. HOGAN			MAY 23 2006 1435	S. Welch			5-23-06 1435
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

PNNL J6E240239

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X06-035-28

Page 1 of 1

Collector DURATEK J. G. HOGAN	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. X06-035	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SPECIAL SAMPLING, APRIL 2006	DTS-SAWS-H103B	**Ice Chest No.** SAWS 108 **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 samples submitted under this X SAF 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
B1J636		W	5-23-06	1030	1x20-mL P	Activity Scan H53VQ	None
B1J636		W	↓	↓	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None

Relinquished By DURATEK J. G. HOGAN	Print	Sign	Date/Time MAY 23 2006 1435	Received By S. Welch	Print	Sign	Date/Time 5-23-06 1435
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: 5-23-06 14:35

Client: PGW SDG #: W04933 NA [ ] SAF #: X06-035 NA [ ]

Work Order Number: JGE240239 Chain of Custody # X06-035-23, 24, 25, 26, 27, 28

Shipping Container ID: GRP-03-014 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: 6
7. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
8. Samples have:
   _____ tape
   _____ custody seals
   _____ hazard labels
   ✓ appropriate samples labels
9. Samples are:
   ✓ in good condition
   _____ broken
   _____ leaking
   _____ have air bubbles
   (Only for samples requiring head space)
10. Sample pH taken? NA [ ] pH<2 [ ] pH>2 [ ] adjusted pH [ ]
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): N/A

Sample Custodian: S. Welch Date: 5-23-06 14:35

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, 12/05, Rev. 6

6/29/2006 3:34:09 PM

Sample Preparation/Analysis

Balance Id:2113224201

384868, Pacific Northwest National Laboratory ,
Pacific Northwest National Lab

BN I-129 Prp/SepRC5025
TB Gamma by LEPD
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 07/07/2006 WO 4933

Sep1 DT/Tm Tech:

Batch: 6163472 WATER pCi/L

PM, Quote: HC , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,NortonJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 H53T5-1-AA J6E240239-1-SAMP 05/23/2006 10:30		3735.00g,in AmtRec: 20ML,2X4LP	ITA5448 06/20/06 #Containers: 3	IFA	34.9	100	L2 Scr:	1541 Alpha: 2.67E-04 uCi/Sa	7/6/06 Beta: -4.75E-04 uCi/Sa	
2 H53T5-1-AC-X J6E240239-1-DUP 05/23/2006 10:30		3716.30g,in AmtRec: 20ML,2X4LP	ITA5449 06/20/06 #Containers: 3		34.7	100	L4 Scr:	1541 Alpha: 2.67E-04 uCi/Sa	 Beta: -4.75E-04 uCi/Sa	
3 H53T7-1-AA J6E240239-2-SAMP 05/23/2006 10:30		3896.50g,in AmtRec: 20ML,2X4LP	ITA5450 06/20/06 #Containers: 3		35.8	100	L5 Scr:	1541 Alpha: 1.86E-03 uCi/Sa	 Beta: -9.48E-04 uCi/Sa	
4 H53VF-1-AA J6E240239-3-SAMP 05/23/2006 10:30		3993.60g,in AmtRec: 20ML,2X4LP	ITA5451 06/20/06 #Containers: 3		35.5	100	L2 Scr:	1729 Alpha: -8.94E-04 uCi/Sa	7/6/06 Beta: -5.68E-04 uCi/Sa	
5 H53VJ-1-AA J6E240239-4-SAMP 05/23/2006 10:30		3978.50g,in AmtRec: 20ML,2X4LP	ITA5452 06/20/06 #Containers: 3		34.9	100	L4 Scr:	1730 Alpha: 5.91E-04 uCi/Sa	 Beta: 4.76E-04 uCi/Sa	
6 H53VM-1-AA J6E240239-5-SAMP 05/23/2006 10:30		3938.90g,in AmtRec: 20ML,2X4LP	ITA5453 06/20/06 #Containers: 3		36.0	100	L5 Scr:	1730 Alpha: 3.61E-04 uCi/Sa	 Beta: -4.75E-04 uCi/Sa	
7 H53VQ-1-AA J6E240239-6-SAMP 05/23/2006 10:30		3977.60g,in AmtRec: 20ML,2X4LP	ITA5454 06/20/06 #Containers: 3		36.4	100	L5 Scr:	2011 Alpha: -9.66E-04 uCi/Sa	 Beta: 7.66E-04 uCi/Sa	

6/29/2006 3:34:11 PM

Sample Preparation/Analysis

BN I-129 Prp/SepRC5025
TB Gamma by LEPD
5I CLIENT: HANFORD

Balance Id:2113224201

Pipet #: _____

AnalyDueDate: 07/07/2006

Sep1 DT/Tm Tech:

Batch: 6163472 **pCi/L**
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,NortonJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 H68KV-1-AA-B J6F120000-472-BLK		3995.90g,in	ITA5455 06/20/06	IFA	35.7	100	24	2012	7/6/06 DRQ	
05/23/2006 10:30		AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:
9 H68KV-1-AC-C J6F120000-472-LCS		4005.80g,in	ISD0660 05/10/06		38.9	100	L2	2012		
05/23/2006 10:30		AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:

Comments: Ph APPX 7 7/6-29-6

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

H53T51AA-SAMP Constituent List:
I-129 RDL:1.00E+00 pCi/L LCL: UCL: RPD:
H68KV1AA-BLK:
I-129 RDL:1.00E+00 pCi/L LCL: UCL: RPD:
H68KV1AC-LCS:
I-129 RDL:5 pCi/L LCL:70 UCL:130 RPD:20

H53T51AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
H68KV1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
H68KV1AC-LCS:
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: 7/7/2005, 7/12/2006, Batch: '6163472', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus		Accepting		Comments
6163472							
AC			CalcC	NortonJ	6/29/2006 2:55:25 PM		
SC				wagarr	IsBatched	6/12/2006 3:36:55 PM	ICOC_RADCALC v4.8.24
SC				NortonJ	InPrep	6/29/2006 2:55:25 PM	RICHRC5025 REV3
SC				NortonJ	InSep1	6/29/2006 3:33:23 PM	richrc5025 rev3
SC				NortonJ	Sep1C	7/6/2006 1:54:51 PM	RICHRC5025 REV3
SC				BlackCL	InCnt1	7/6/2006 1:58:18 PM	RICH-RD-0007 REVISION 5
SC				DAWKINSO	CalcC	7/6/2006 9:06:56 PM	RICH-RD-0007 REVISION 5
AC				**NortonJ**	6/29/2006 3:33:23 PM		
AC				**NortonJ**	7/6/2006 1:54:51 PM		
AC				**BlackCL**	7/6/2006 1:58:18 PM		
AC				**DAWKINSO**	7/6/2006 9:06:56 PM		

AC: Accepting Entry; SC: Status Change

Seger, Sandra

From: Seger, Sandra
Sent: Tuesday, July 18, 2006 11:40 AM
To: Stewart, Dorothy L
Cc: Felmy, Diana; 'Hampt, Heidi'
Subject: W04933 EDD

Attachments: W04933.Edd

W04933.Edd (8 KB)