

W05066A

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RECEIVED

FEB 13 2007

DL STEWART

*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 \_\_\_\_\_ Pages*

Report Nbr: 34439

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05066A	W07-011	B1L6T3	J7A260141-1	JNFKC1AA	9JNFKC10	7029246

---

Comments:



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

February 7, 2007

Attention: Dot Stewart

---

SAF Number	:	W07-011
Date SDG Closed	:	November 17, 2006
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W05066A
Data Deliverable	:	15-Day / Summary

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### CASE NARRATIVE

#### I. Introduction

On January 25, 2007 a request for reanalysis of a water sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number 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>
B1L6T3	JNFKC	WATER	1/25/07

#### 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**  
Technetium-99 by method RICH-RC-5078

#### 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

Technetium-99 by method RICH-RC-5078:

The LCS, batch blank, samples, sample duplicate (B1L6T3), and sample matrix spike (B1L6T3) 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:



Sherry 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

<b>Action Lev</b>	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.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or STL Richland.
<b>Count Error (#s)</b>	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.
<b>Total Uncert (#s) <i>u<sub>c</sub> - Combined Uncertainty.</i></b>	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<sub>c</sub> the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor CRDL (RL)</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.  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)
<b>Lc</b>	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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . 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.
<b>Lot-Sample No</b>	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.
<b>MDC MDA</b>	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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	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.
<b>Rst/MDC</b>	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.
<b>Rst/TotUcert</b>	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.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order</b> Number.
<b>RER</b>	The equation Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2)]$ 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.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	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.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

2/7/2007 1:12:29 PM

## STL Richland Report

Lab Code: STLRL

FormNbr: R    FormatType: FEAD    Version: 05    Rpt Nbr: 34439    File Name: h:\Reportdb\edd\Fead\Rad\W05066A.Edd, h:\Reportdb\edd\Fead\Rad\34439.E

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:	Collection Date:						
9JNFKC10	B1L6T3		MW6-SBB-A1	W07-011	W05066A					11/15/2006 10:55						
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act		
7029246	TC-99	14133-76-7	8.99E+01	pCi/L	6.7E+00	1.1E+01		1.03E+01	100.0	TC99_SEP_LSC	1.254E-01	L	02/01/2007 19:20	1		

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.

1

Wednesday, February 07, 2007

**STL Richland QC Blank Report**

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05066A.Edd, h:\Reportdb\edd\FeadIV\Rad\34439.E

Lab Sample Id: JNJM91AB

Sdg/Rept Nbr: W05066A 34439

Collection Date: 11/15/2006 10:55

Client Id: NA

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 01/25/2007

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
7029246 BLK	TC-99 14133-76-7	-9.76E-01	pCi/L	6.1E+00 4.2E+00	U	1.03E+01	100.0		TC99_SEP_LS	1.262E-01 L	02/01/2007 22:27				D

Wednesday, February 07, 2007 Lab Code: STLRL  
**STL Richland QC Control Sample Report**  
 FormNbr: R      FormatType: FEAD      VersionNbr: 05      File Name: h:\Reportdb\eddd\FeadIV\Rad\W05066A.Edd, h:\Reportdb\eddd\FeadIV\Rad\34439.E

Lab Sample Id: JNJM91CS      Sdg/Rept Nbr: W05066A      34439      Collection Date: 11/15/2006 10:55  
 Client Id: NA      Matrix: WATER      WATER      Sample On Date:  
 Moisture/Solids%\*:      QC Type: BS      Received Date: 01/25/2007

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	Qual	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7029246 BS	TC-99 14133-76-7	4.79E+02	pCi/L	3.4E+01 1.3E+01		1.04E+01	100.0	5.45E+02 87.9	TC99_SEP_LS	1.25E-01 L	02/01/2007 23:29			70 130	D

STL Richland      rptFeadRadEdd v3.68      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. 2

Wednesday, February 07, 2007

## STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\WRad\W05066A.Edd, h:\Reportdb\edd\Fead\WRad\34439.E

Lab Sample Id: JNFKC1DR

Sdg/Rept Nbr: W05066A 34439

Collection Date: 11/15/2006 10:55

Client Id: B1L6T3

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: DUP

Received Date: 01/25/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
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
W07-011	MW6-SBB-A19981														
7029246 DUP	TC-99 14133-76-7	1.01E+02 8.99E+01	pCi/L	1.2E+01 6.9E+00		1.04E+01	100.0		TC99_SEP_LS	1.256E-01 L	02/01/2007 21:24	11.4 20.0	1.3 3		D

STL Richland

rptFeadRadEdd v3.68

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.

Wednesday, February 07, 2007

**STL Richland Qc Matrix Spike Report**

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05066A.Edd, h:\Reportdb\edd\Fead\Rad\34439.E

Lab Sample Id: JNFKC1CW

Sdg/Rept Nbr: W05066A 34439

Collection Date: 11/15/2006 10:55

Client Id: B1L6T3

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: MS

Received Date: 01/25/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType					
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qual	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
W07-011	MW6-SBB-A19981														
7029246	TC-99	2.82E+03	pCi/L	1.8E+02 2.9E+01		1.02E+01	100.0	3.56E+03 79.4	TC99_SEP_LS	1.271E-01 L	02/01/2007 20:22			60 140	D
MS	14133-76-7														



STL

Data Review/Verification Checklist  
RADIOCHEMISTRY, First Level Review

2/2/2007 3:48:49 PM

Lot No., Due Date: J7A260141; 02/09/2007  
Client, Site: 384868; PGW 615HANFORD HANFORD  
QC Batch No., Method Test: 7029246; RTC99 Tc-99 by LSC  
SDG, Matrix: W05066A; 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 Incorrect Tracer/Vial => JNFKC1AC TCSG<->TCSE Q:V9	✓		✓
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. OK	✓		
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. No Matrix Blanks (MBIks) found in Batch!	✓		✓
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. No Matrix Spikes (MLCS) found in Batch!	✓		✓
8.16 MS within Control Limits. OK	✓		
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 => TC-99  OK; No Callin Level Found => TC-99	✓		
8.24 Result + 3s >=0, Not Too Negative. OK	✓		
8.25 Counting Spectrum are within FWHM Limits. 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 2.2.07



# STL

Data Review Checklist  
RADIOCHEMISTRY  
Second Level Review

QC Batch Number: 7029246  
W05066A

Review Item	Yes (✓)	No (✓)	N/A (✓)
<b>A. Sample Analysis</b>			
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>B. QC Samples</b>			
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?	/		
<b>C. Other</b>			
1. Are all Nonconformances included and noted?			/
2. Are all required forms filled out?	/		
3. Was the correct methodology used?	//		
4. Was transcription checked?	//		
5. Were all calculations checked at a minimum frequency?	//		
6. Were units checked?	//		

Comments on any "No" response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Second Level Review: Sheryl R Adams Date: 2-6-07

W05066A

01/25/2007  
RECHECK, RECOUNT, OR REANALYSIS ORDER  
CONTRACT NO MW6-SBB-A19981

Severn Trent Incorporated,  
2800 George Washington  
Richland, WA 99354

Battelle PNNL Order Number: 070125STLRL-R3672

Sample Delivery Group: W05066

Special Instructions None

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
9JJWPH10	B1L6T3	Recheck	15/15	TC99_SEP_LSC

J7A260141  
W05066A  
02-09-07

JNFKC

Deliver Report Results to: Dorothy L. Stewart, K6-96  
c/o Secretary  
3110 Port of Benton Blvd.  
Richland, WA 99352

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

**Adam, Sherryl**

---

**From:** Hampt, Heidi [heidi.hampt@pnl.gov]  
**Sent:** Thursday, January 25, 2007 9:36 AM  
**To:** Adam, Sherryl  
**Cc:** Stewart, Dorothy L  
**Subject:** Request for Recheck, Recount, or Reanalysis Order

**Attachments:** 070125STLRLR3672.rtf



070125STLRLR3672  
.rtf (3 KB)

<<070125STLRLR3672.rtf>>

See Attached





# STL

### Sample Check-in List

Date/Time Received: 11/15/06 15:00

Client: PNNL

SDG #: W05064 NA  SAF #: W07-011 NA

Work/Order Number: JK160365

Chain of Custody # W07011562

Shipping Container ID: GRP-06-005

Air Bill # 1413

1. Custody Seals on shipping container intact? W0701198  
W0701199  
W0701156  
NA  Yes  No
2. Custody Seals dated and signed? NA  Yes  No
3. Chain of Custody record present? Yes  No
4. Cooler temperature: NA S: Vermiculite/packing materials is NA  Wet  Dry
6. Number of samples in shipping container: 26
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? \*  
\*For documentation only. No corrective action needed. Yes  No
12. Were any anomalies identified in sample receipt? Yes  No
13. Description of anomalies (include sample numbers): N/A

Sample Custodian: [Signature]

Date: 11/15/06 15:00

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person contacted \_\_\_\_\_

No action necessary; process as is.

Project Manager \_\_\_\_\_

Date \_\_\_\_\_

STL RICHLAND

1/30/2007 7:54:44 AM

Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory ,  
Pacific Northwest National Lab

AM Tc-99 Prp/SepRC5078  
S5 Technetium-99 by Liquid Scint  
5I CLIENT: HANFORD

PRIORITY

Pipet #: \_\_\_\_\_

AnalyDueDate: 02/09/2007 *W05046A*

Sep1 DT/Tm Tech:

Batch: 7029246 WATER pCi/L PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 7029246 AMS5,

Prep Tech: ,BockJ



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:
1 JNFKC-1-AA J7A260141-1-SAMP  11/15/2006 10:55	125.40g,in			<i>60</i>				
AmtRec: LP #Containers: 1 Scr: Alpha: Beta:								
2 JNFKC-1-AC-S J7A260141-1-MS  11/15/2006 10:55	127.10g,in		TCSG1761 01/03/07,pd 01/10/06,r					
AmtRec: LP #Containers: 1 Scr: Alpha: Beta:								
3 JNFKC-1-AD-X J7A260141-1-DUP  11/15/2006 10:55	125.60g,in							
AmtRec: LP #Containers: 1 Scr: Alpha: Beta:								
4 JNJM9-1-AA-B J7A290000-246-BLK  11/15/2006 10:55	126.20g,in							
AmtRec: #Containers: 1 Scr: Alpha: Beta:								
5 JNJM9-1-AC-C J7A290000-246-LCS  11/15/2006 10:55	125.00g,in		TCSE2061 12/20/06,pd 01/10/06,r					
AmtRec: #Containers: 1 Scr: Alpha: Beta:								
6 JNJM9-1-AD-BN J7A290000-246-IBLK  11/15/2006 10:55								
AmtRec: #Containers: 1 Scr: Alpha: Beta:								

STL RICHLAND

1/30/2007 7:54:52 AM

Sample Preparation/Analysis

Balance Id:

AM Tc-99 Prp/SepRC5078  
 S5 Technetium-99 by Liquid Scint  
 51 CLIENT: HANFORD

**PRIORITY**

Pipet #:

AnalyDueDate: 02/09/2007

Sep1 DT/Tm Tech:

Batch: 7029246  
 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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Comments: PH <2.0 931-30-07

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

JNFKC1AA-SAMP Constituent List:  
 Tc-99 RDL:1.50E+01 pCi/L LCL:70 UCL:130 RPD:20

JNFKC1AC-MS Constituent List:

JNJM91AA-BLK:  
 Tc-99 RDL:1.50E+01 pCi/L LCL: UCL: RPD:

JNJM91AC-LCS:  
 Tc-99 RDL:15 pCi/L LCL:70 UCL:130 RPD:20

JNJM91AD-IBLK:  
 Tc-99 RDL:1.50E+01 pCi/L LCL: UCL: RPD:

JNFKC1AA-SAMP Calc Info:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JNFKC1AC-MS Calc Info:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JNJM91AA-BLK:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JNJM91AC-LCS:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JNJM91AD-IBLK:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By \_\_\_\_\_ Date: \_\_\_\_\_

19

2/2/2007 3:26:37 PM

# ICOC Fraction Transfer/Status Report

ByDate: 2/2/2006, 2/7/2007, Batch: '7029246', User: \*ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
	7029246				
AC		CalcC	BockJ	1/30/2007 7:54:48	
SC			wagarr	IsBatched 1/29/2007 11:11:04 AM	ICOC_RADCALC v4.8.26
SC			BockJ	Prep1C 1/30/2007 7:54:48 AM	RICH-RC-5016 REVISION 6
SC			FABREM	Sep1C 2/1/2007 12:17:14 PM	RICH-RC-5078 REVISION 3
SC			BlackCL	InCnt1 2/1/2007 12:28:11 PM	RICH-RD-0001 REVISION 3
SC			BlackCL	CalcC 2/2/2007 6:54:27 AM	RICH-RD-0001 REVISION 3
AC			FABREM	2/1/2007 12:17:14 PM	
AC			BlackCL	2/1/2007 12:28:11 PM	
AC			BlackCL	2/2/2007 6:54:27 AM	

AC: Accepting Entry; SC: Status Change

STL Richland  
Richland Wa.