

Analytical Data Package Prepared For

# Fluor Hanford

Radiochemical Analysis By

**TAL Richland STLRL**

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

*Data Package Contains \_\_\_\_\_ Pages*

**Report Nbr: 36234**

<b>SDG Nbr</b>	<b>ORDER Nbr</b>	<b>CLIENT ID NUMBER</b>	<b>LOT Nbr</b>	<b>WORK ORDER</b>	<b>RPT DB ID</b>	<b>BATCH</b>
<b>W05215</b>	<b>S07-007</b>	<b>B1NX84</b>	<b>J7G200103-1</b>	<b>J28R21AA</b>	<b>9J28R210</b>	<b>7201383</b>

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**Comments:**



**STL Richland**  
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 Richland, WA 99354

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 www.stl-inc.com

## Certificate of Analysis

Fluor Hanford  
 1200 Jadwin Ave.  
 Richland, WA 99352

August 3, 2007

Attention: Steve Trent

SAF Number : S07-007  
 Date SDG Closed : July 19, 2007  
 Number of Samples : One (1)  
 Sample Type : Water  
 SDG Number : W05215  
 Data Deliverable : 15-Day / Summary

### CASE NARRATIVE

#### I. Introduction

On July 19, 2007 one water sample was 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>DATE OF RECEIPT</u>	<u>MATRIX</u>
B1NX84	J28R2	7/19/07	WATER

#### II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

#### III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

**Liquid Scintillation Counting**  
 Tritium by method RICH-RC-5007

Fluor Hanford  
August 3, 2007

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#### IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

#### V. Comments

##### **Liquid Scintillation Counting**

Tritium by method RICH-RC-5007:

The LCS, batch blank, samples and sample duplicate (B1NX84) 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 Seger*  
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

<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</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgrndCnt}/\text{BkgrndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . 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.
<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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgrndCnt}/\text{BkgrndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability.
<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.

8/3/2007 10:21:13 AM

### TAL Richland Report

Lab Code: STLRL

FormNbr: R      FormatType: FEAD      Version: 05      Rpt Nbr: 36234      File Name: h:\Reportdb\edd\Fead\Rad\W05215.Edd, h:\Reportdb\edd\Fead\Rad\36234.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:				
9J28R210	B1NX84		MW6-SBB-A1	S07-007	W05215					07/19/2007 11:31				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7201383	H-3	10028-17-8	1.98E+04	pCi/L	4.7E+02	9.0E+02		2.98E+02	100.0	906.0_H3_LSC	5.00E-03	L	07/25/2007 16:50	I

Friday, August 03, 2007

### TAL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05215.Edd, h:\Reportdb\edd\FeadIV\Rad\36234.Edd

Lab Sample Id: J3AKK1AB

Sdg/Rept Nbr: W05215

36234

Collection Date: 07/19/2007 11:31

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 07/19/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AC	H					
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7201383 BLK	H-3 10028-17-8	5.08E+01	pCi/L	1.4E+02 1.2E+02	U	2.97E+02	100.0		906.0_H3_LSC	5.00E-03 L	07/25/2007 11:23				D

Friday, August 03, 2007

### TAL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\I\Rad\W05215.Edd, h:\Reportdb\edd\Fead\I\Rad\36234.Edd

Lab Sample Id: J3AKK1DX

Sdg/Rept Nbr: W05215 36234

Collection Date: 07/19/2007 11:31

Client Id: NA

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 07/19/2007

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	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7201383 BLK	H-3 10028-17-8	-6.40E+01	pCi/L	1.4E+02 1.2E+02	U	3.02E+02	100.0		906.0_H3_LSC	5.00E-03 L	07/25/2007 14:06				D

Friday, August 03, 2007

### TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05215.Edd, h:\Reportdb\edd\Fead\Rad\36234.Edd

Lab Sample Id: J3AKK1CS

Sdg/Rept Nbr: W05215

36234

Collection Date: 07/19/2007 11:31

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 07/19/2007

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
7201383 BS	H-3 10028-17-8	2.64E+03	pCi/L	2.5E+02 2.1E+02		2.97E+02	100.0	2.71E+03 97.4	906.0_H3_LSC	5.00E-03 L	07/25/2007 12:44			70 130	D

Friday, August 03, 2007

### TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05215.Edd, h:\Reportdb\edd\Fead\Rad\36234.Edd

Lab Sample Id: J3AKK1EM

Sdg/Rept Nbr: W05215 36234

Collection Date: 07/19/2007 11:31

Client Id: NA

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 07/19/2007

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	Qual MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7201383 BS	H-3 10028-17-8	2.45E+03	pCi/L	2.4E+02 2.0E+02	2.97E+02	100.0	2.71E+03 90.5	906.0_H3_LSC	5.00E-03 L	07/25/2007 15:28			70 130	D

Friday, August 03, 2007

### TAL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05215.Edd, h:\Reportdb\edd\FeadIV\Rad\36234.Edd

Lab Sample Id: J28R21CR

Sdg/Rept Nbr: W05215

36234

Collection Date: 07/19/2007 11:31

Client Id: B1NX84

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: DUP

Received Date: 07/19/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
S07-007	MW6-SBB-A19981								AB	H					
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7201383 DUP	H-3 10028-17-8	2.01E+04 1.98E+04	pCi/L	9.1E+02 4.8E+02		3.00E+02	100.0		906.0_H3_LSC	5.00E-03 L	07/25/2007 18:11	1.8 20.0	0.6 3		D

Lot No., Due Date: J7G200103; 08/03/2007  
 Client, Site: 384868;  
 QC Batch No., Method Test: 7201383; RTRITIUM H-3 by LSC  
 SDG, Matrix: ; WATER *W05215*

8.0	Correction Calculation Protocol Used. OK	Yes	No	N/A
8.01	The Appropriate Methods Were Used To Analyze the Samples OK	Yes	No	N/A
8.02	Final Results Are in the Appropriate Activity Units OK	Yes	No	N/A
8.03	Batch Contains the Required QC Appropriate for the Method OK	Yes	No	N/A
8.04	The Correct Tracer and QC Vials Where Used in the Samples OK	Yes	No	N/A
8.05	Sample was Appropriately Traced Before or After Fractionating the Sample OK	Yes	No	N/A
8.06	At Least the Minimum Sample Volume Was Used Analysis Volume => J28R21AA 5.00<10.00 Q:VB	Yes	No	N/A
8.07	The Correct Count Geometry was Used. Count Geometry => J3AKK1AF SVP15/5<>SVP10/10 J3AKK1AG SVP15/5<>SVP10/10 J3AKK1AA SVP15/5<>SVP10/10 J3AKK1AC SVP15/5<>SVP10/10 J3AKK1AD SVP15/5<>SVP10/10 J3AKK1AE SVP15/5<>SVP10/10 J28R21AA SVP15/5<>SVP10/10 J28R21AC SVP15/5<>SVP10/10 Q:VC	Yes	No	N/A
8.08	The Sample was Counted for the Minimum Count Time or CRDL was Achieved. OK	Yes	No	N/A
8.09	Method Blank is within Control Limits. OK	Yes	No	N/A
8.1	Comments:			
8.11	Matrix Blank is within Control Limits. OK	Yes	No	N/A
8.12	Method Blank(s) < QAS Limit Value (No B Flag Necessary). OK	Yes	No	N/A
8.13	QAS Specified Duplicate Equation Value within Control Limits. OK (RPD)	Yes	No	N/A
8.14	LCS within Control Limits. OK	Yes	No	N/A
8.15	MLCS within Control Limits. OK	Yes	No	N/A
8.16	MS within Control Limits. No Matrix Spike Samples (MS) found in Batch!	Yes	No	N/A
8.17	Tracer within Control Limits. No Tracers found in Batch!	Yes	No	N/A
8.18	Samples are above Minimum Tracer Yield (No Failed Samples) No Tracers found in Batch!	Yes	No	N/A
8.19	Sample Specific MDC <= CRDL. OK	Yes	No	N/A
8.2	Comments:			
8.21	Result < Lc, Activity Not Detected, U Flag. No Limit Specified!	Yes	No	N/A
8.22	Result < Mdc, Activity Not Detected, U Flag. No Positive Results OK Calc_IDL Not Calculated	Yes	No	N/A
8.23	Result <= Action Level, when Defined. OK; No Action Level Found => H-3	Yes	No	N/A

*OK*  
*OK*  
*WA*  
*7/31/07*

OK; No Callin Level Found => H-3

8.24 Result + 3s >=0, Not Too Negative.

OK

Yes No N/A



8.25 Counting Spectrum are within FWHM Limits.

No FWHM found in Batch Data!

Yes No N/A



8.26 Instruments have Current Calibrations.

Yes No N/A

8.27 Correct Count Library Used.

No Count Library found in Batch Data!

Yes No N/A



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.

OK

Yes No N/A



First Level Review

*Lisa Antonson*

Date

7/31/07



# STL

Data Review Checklist  
RADIOCHEMISTRY  
Second Level Review

QC Batch Number: 7201383  
W05215

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. Adams* Date: 7-21-07





# STL

## Sample Check-in List

Date/Time Received: 071907 1525

Client: PGW SDG #: W05215 NA  SAF #: 507-007 NA

Work Order Number: J76200103 Chain of Custody # 507-007-42

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? Yes  No
4. Cooler temperature: \_\_\_\_\_ NA  5. Vermiculite/packing materials is NA  Wet  Dry
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? NA  Yes  No
8. Samples have:
 

<input type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input checked="" type="checkbox"/> custody seals	<input checked="" type="checkbox"/> appropriate samples labels
9. Samples are:
 

<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking
<input type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

 (Only for samples requiring head space)
10. Sample pH taken? NA  pH<2  pH>2  pH>9
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:  Date: 071907

Client Sample ID	Analysis Requested	Condition	Comments/Action

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

No action necessary; process as is.

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

7/20/2007 2:19:03 PM

### Sample Preparation/Analysis

Balance Id: 12445

384868, Pacific Northwest National Laboratory ,  
Pacific Northwest National Lab

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

# PRIORITY

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

AnalyDueDate: 08/02/2007 W05215

Sep1 DT/Tm Tech: 7-24-07 pm

Batch: 7201383 WATER pCi/L

PM, Quote: SA , 57671

Sep2 DT/Tm Tech: \_\_\_\_\_

SEQ Batch, Test: None All Tests: 7201383 ARS6,

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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<b>1 J28R2-1-AA</b>								
J7G200103-1-SAMP								
07/19/2007 11:31		AmtRec: 20ML,250G		#Containers: 2		Scr:	Alpha:	Beta:

<b>2 J28R2-1-AC-X</b>								
J7G200103-1-DUP								
07/19/2007 11:31		AmtRec: 20ML,250G		#Containers: 2		Scr:	Alpha:	Beta:

<b>3 J3AKK-1-AA-B</b>								
J7G200000-383-BLK								
07/19/2007 11:31		AmtRec:		#Containers: 1		Scr:	Alpha:	Beta:

<b>4 J3AKK-1-AC-C</b>								
J7G200000-383-LCS								
07/19/2007 11:31		AmtRec:		#Containers: 1		Scr:	Alpha:	Beta:

<b>5 J3AKK-1-AD-BX</b>								
J7G200000-383-MBLK								
07/19/2007 11:31		AmtRec:		#Containers: 1		Scr:	Alpha:	Beta:

<b>6 J3AKK-1-AE-CM</b>								
J7G200000-383-MLCS								
07/19/2007 11:31		AmtRec:		#Containers: 1		Scr:	Alpha:	Beta:

<b>7 J3AKK-1-AF-BN</b>								
J7G200000-383-IBLK								
07/19/2007 11:31		AmtRec:		#Containers: 1		Scr:	Alpha:	Beta:

7/20/2007 2:19:04 PM

### Sample Preparation/Analysis

Balance Id: \_\_\_\_\_

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

# PRIORITY

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

AnalyDueDate: 08/02/2007

Sep1 DT/Tm Tech: \_\_\_\_\_

Batch: 7201383

pCi/L

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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8 J3AKK-1-AG-BN

J7G200000-383-IBLK



07/19/2007 11:31

AmtRec:

#Containers: 1

Scr:

Alpha:

Beta:

#### Comments:

#### All Clients for Batch:

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

#### J28R21AA-SAMP Constituent List:

H-3	RDL:400	pCi/L	LCL:70	UCL:130	RPD:20
J3AKK1AA-BLK:					
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
J3AKK1AC-LCS:					
H-3	RDL:400	pCi/L	LCL:70	UCL:130	RPD:20
J3AKK1AD-MBLK:					
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
J3AKK1AE-MLCS:					
H-3	RDL:400	pCi/L	LCL:70	UCL:130	RPD:20
J3AKK1AF-IBLK:					
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
J3AKK1AG-IBLK:					
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:

#### J28R21AA-SAMP Calc Info:

Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
J3AKK1AA-BLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
J3AKK1AC-LCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
J3AKK1AD-MBLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
J3AKK1AE-MLCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
J3AKK1AF-IBLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

7/20/2007 2:19:05 PM

### Sample Preparation/Analysis

Balance Id: \_\_\_\_\_

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

# PRIORITY

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

AnalyDueDate: 08/02/2007

Sep1 DT/Tm Tech: \_\_\_\_\_

Batch: 7201383  
SEQ Batch, Test: None

pCi/L

Sep2 DT/Tm Tech: \_\_\_\_\_

Prep Tech: \_\_\_\_\_



Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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U3AKK1AG-IBLK:

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

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

7/31/2007 12:03:14 PM

# ICOC Fraction Transfer/Status Report

ByDate: 7/31/2006, 8/5/2007, Batch: '7201383', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>7201383</b>				
AC		<b>CalcC</b>	<b>McDowellD</b> 7/24/2007 6:31:07	
SC		wagarr	IsBatched 7/20/2007 2:20:19 PM	ICOC_RADCALC v4.8.26
SC		McDowellD	InSep1 7/24/2007 6:31:07 AM	RICH-RC-5007 REVISION 6
SC		McDowellD	Sep1C 7/24/2007 1:07:21 PM	RICH-RC-5007 REVISION 6
SC		BlackCL	InCnt1 7/24/2007 1:15:38 PM	RICH-RD-0001 REVISION 4
SC		BlackCL	CalcC 7/26/2007 8:19:21 AM	RICH-RD-0001 REVISION 4
AC		<b>McDowellD</b>	7/24/2007 1:07:21 PM	
AC		<b>BlackCL</b>	7/24/2007 1:15:38 PM	
AC		<b>BlackCL</b>	7/26/2007 8:19:21	

AC: Accepting Entry; SC: Status Change