

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: 36530**

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05193	X07-032	B1NHM8	J7F270115-1	J1VPT1AA	9J1VPT10	7191478
		B1NHM8	J7F270115-1	J1VPT1AC	9J1VPT10	7191479
		B1NHM9	J7F270115-2	J1VPV1AA	9J1VPV10	7191478
		B1NHM9	J7F270115-2	J1VPV1AC	9J1VPV10	7191479
		B1NHN4	J7F270115-3	J1VP01AA	9J1VP010	7191480
		B1NHN6	J7F270115-4	J1VP21AA	9J1VP210	7191480
		B1NHN5	J7F270115-5	J1VP41AA	9J1VP410	7191480
		B1NHP8	J7F270115-6	J1VP51AA	9J1VP510	7191477

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Comments:

# Certificate of Analysis

Fluor Hanford  
1200 Jadwin Ave.  
Richland, WA 99352

August 29, 2007

Attention: Steve Trent



# STL

**STL Richland**  
2800 George Washington Way  
Richland, WA 99354

Tel: 509 375 3131 Fax: 509 375 5590  
www.stl-inc.com

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SAF Number : X07-032  
Date SDG Closed : July 10, 2007  
Number of Samples : Six (6)  
Sample Type : Water  
SDG Number : W05193  
Data Deliverable : 45-Day / Summary

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## CASE NARRATIVE

### I. Introduction

On June 26, 2007 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 Fluor Hanford specific IDs:

<u>PGW ID#</u>	<u>STLR ID#</u>	<u>DATE OF RECEIPT</u>	<u>MATRIX</u>
B1NHM8	J1VPT	6/26/07	WATER
B1NHM9	J1VPV	6/26/07	WATER
B1NHN4	J1VP0	6/26/07	WATER
B1NHN6	J1VP2	6/26/07	WATER
B1NHN5	J1VP4	6/26/07	WATER
B1NHP8	J1VP5	6/26/07	WATER

### 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:

#### **Gas Proportional Counting**

Gross Alpha by method RICH-RC-5014

Gross Beta by method RICH-RC-5014

Strontium-90 by method RICH-RC-5006

#### **Laser Induced Phosphorimetry**

Total Uranium by method RICH-RC-5058

Fluor Hanford  
August 29, 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**

##### **Gas Proportional Counting**

Gross Alpha by method RICH-RC-5014:

Samples B1NHM8, B1NHM9 and B1NHM8 DUP were analyzed with reduced aliquots based on weight screen results. Except as noted, the LCS, batch blank, samples and sample duplicate (B1NHM8) results are within contractual requirements.

Gross Beta by method RICH-RC-5014:

Samples B1NHM8, B1NHM9 and B1NHM9 DUP were analyzed with reduced aliquots based on weight screen results. Except as noted, the LCS, batch blank, samples and sample duplicate (B1NHM9) results are within contractual requirements.

Strontium-90 by method RICH-RC-5006

The LCS, batch blank, samples and sample duplicate (B1NHN4) results are within contractual requirements.

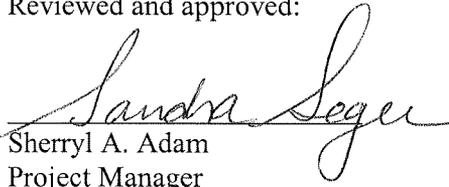
##### **Total Uranium**

Total Uranium by method RICH-RC-5058:

The LCS, batch blank, samples, sample duplicate (B1NHP8), and sample matrix spike (B1NHP8) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

  
Sherryl A. Adam  
Project Manager

Or

## 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 $(\text{Result}/\text{Expected})-1$ 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.

8/29/2007 12:05:00 PM

## TAL Richland Report

Lab Code: STLRL

FormNbr: R      FormatType: FEAD      Version: 05      Rpt Nbr: 36530      File Name: h:\Reportdb\edd\Fead\IVRad\W05193.Edd, h:\Reportdb\edd\Fead\IVRad\36530.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:				
9J1VP010	B1NHN4		MW6-SBB-A1	X07-032	W05193					06/26/2007 11:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7191480	SR-90	10098-97-2	6.18E+01	pCi/L	1.7E+00	9.0E+00		4.01E-01	78.4	SRISO_SEP_PRE	1.0064E+00	L	08/26/2007 09:13	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:				
9J1VP210	B1NHN6		MW6-SBB-A1	X07-032	W05193					06/26/2007 11:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7191480	SR-90	10098-97-2	6.23E+01	pCi/L	1.7E+00	9.1E+00		4.25E-01	78.0	SRISO_SEP_PRE	1.0095E+00	L	08/26/2007 09:13	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:				
9J1VP410	B1NHN5		MW6-SBB-A1	X07-032	W05193					06/26/2007 11:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7191480	SR-90	10098-97-2	5.70E+01	pCi/L	1.5E+00	8.3E+00		3.72E-01	83.7	SRISO_SEP_PRE	1.0114E+00	L	08/26/2007 09:13	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:				
9J1VP510	B1NHP8		MW6-SBB-A1	X07-032	W05193					06/26/2007 11:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7191477	Uranium	7440-61-1	1.08E+03	ug/L	1.3E+02	1.3E+02		8.09E-02		UTOT_KPA	2.59E-02	ML	08/24/2007 11:20	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:				
9J1VPT10	B1NHM8		MW6-SBB-A1	X07-032	W05193					06/26/2007 11:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7191478	ALPHA	12587-46-1	8.75E+00	pCi/L	2.2E+00	3.0E+00		1.51E+00	100.0	9310_ALPHABETA	1.491E-01	L	08/25/2007 09:06	I
7191479	BETA	12587-47-2	5.65E+01	pCi/L	4.1E+00	1.1E+01		3.62E+00	100.0	9310_ALPHABETA	1.652E-01	L	08/25/2007 09:48	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:				
9J1VPV10	B1NHM9		MW6-SBB-A1	X07-032	W05193					06/26/2007 11:30				
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7191478	ALPHA	12587-46-1	6.01E+00	pCi/L	1.8E+00	2.3E+00		1.73E+00	100.0	9310_ALPHABETA	1.514E-01	L	08/25/2007 09:06	I
7191479	BETA	12587-47-2	6.61E+01	pCi/L	4.4E+00	1.4E+01		3.29E+00	100.0	9310_ALPHABETA	1.609E-01	L	08/25/2007 11:34	I

Wednesday, August 29, 2007

### TAL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\ledd\Fead\VRad\W05193.Edd, h:\Reportdb\ledd\Fead\VRad\36530.Edd

Lab Sample Id: J2K841AB

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AL	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
7191478 BLK	ALPHA 12587-46-1	-1.56E-01	pCi/L	1.4E-01 1.3E-01	U	5.61E-01	100.0		9310_ALPHAB	2.01E-01 L	08/25/2007 09:06				D

Wednesday, August 29, 2007

# TAL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05193.Edd, h:\Reportdb\edd\FeadIV\Rad\36530.Edd

Lab Sample Id: J2K861AB

Sdg/Rept Nbr: W05193

36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AN	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
7191479 BLK	BETA 12587-47-2	4.07E-01	pCi/L	1.2E+00 1.2E+00	U	2.60E+00	100.0		9310_ALPHAB	2.005E-01 L	08/25/2007 11:34				D

Wednesday, August 29, 2007

# TAL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05193.Edd, h:\Reportdb\edd\Fead\Rad\36530.Edd

Lab Sample Id: J2K881AB

Sdg/Rept Nbr: W05193

36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AP	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
7191480 BLK	SR-90 10098-97-2	2.01E-01	pCi/L	1.8E-01 1.7E-01	U	3.63E-01	78.4		SRISO_SEP_P	9.979E-01 L	08/26/2007 09:14				D

Wednesday, August 29, 2007

### TAL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05193.Edd, h:\Reportdb\edd\FeadIV\Rad\36530.Edd

Lab Sample Id: J2K8L1AB

Sdg/Rept Nbr: W05193

36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BLK

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AR	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/ ML	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7191477 BLK	Uranium 7440-61-1	2.52E-02	ug/L	2.7E-03 2.7E-03	U	8.28E-02			UTOT_KPA	2.53E-02 ML	08/24/2007 11:09				D

Wednesday, August 29, 2007

# TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\I\Rad\W05193.Edd, h:\Reportdb\edd\Fead\I\Rad\36530.Edd

Lab Sample Id: J2K841CS

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AM	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
7191478 BS	ALPHA 12587-46-1	2.03E+01	pCi/L	5.1E+00 2.1E+00		6.74E-01	100.0	2.26E+01 89.8	9310_ALPHAB	1.993E-01 L	08/25/2007 09:06			70 130	D

Wednesday, August 29, 2007

# TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05193.Edd, h:\Reportdb\edd\Fead\Rad\36530.Edd

Lab Sample Id: J2K861CS

Sdg/Rept Nbr: W05193

36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AO	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
7191479 BS	BETA 12587-47-2	2.31E+01	pCi/L	4.8E+00 2.5E+00		2.92E+00	100.0	2.29E+01 100.9	9310_ALPHAB	1.984E-01 L	08/25/2007 11:34			70 130	D

Wednesday, August 29, 2007

# TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05193.Edd, h:\Reportdb\edd\Fead\Rad\36530.Edd

Lab Sample Id: J2K881CS

Sdg/Rept Nbr: W05193

36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AQ	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
7191480 BS	SR-90 10098-97-2	1.39E+01	pCi/L	2.1E+00 7.5E-01		3.79E-01	80.6	1.35E+01 102.6	SRISO_SEP_P	1.0005E+00 L	08/26/2007 09:14			70 130	D

Wednesday, August 29, 2007

# TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05193.Edd, h:\Reportdb\edd\Fead\Rad\36530.Edd

Lab Sample Id: J2K8L1CS

Sdg/Rept Nbr: W05193

36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER

WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AS	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
7191477 BS	Uranium 7440-61-1	3.45E+01	ug/L	4.1E+00 4.1E+00		7.76E-02		3.34E+01 103.4	UTOT_KPA	2.70E-02 ML	08/24/2007 11:12			70 130	D

Wednesday, August 29, 2007

# TAL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\eddd\FeadIV\Rad\W05193.Edd, h:\Reportdb\eddd\FeadIV\Rad\36530.Edd

Lab Sample Id: J2K8L1DS

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: NA

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: BS

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AT	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
7191477 BS	Uranium 7440-61-1	3.60E+00	ug/L	3.7E-01 3.7E-01		8.28E-02		3.55E+00 101.3	UTOT_KPA	2.53E-02 ML	08/24/2007 11:14			70 130	D

Wednesday, August 29, 2007

### TAL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05193.Edd, h:\Reportdb\edd\FeadIV\Rad\36530.Edd

Lab Sample Id: J1VP01CR

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: B1NHN4

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: DUP

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
X07-032	MW6-SBB-A19981								AG	H					
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Concl/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7191480	SR-90	6.10E+01	pCi/L	8.9E+00		4.02E-01	80.9		SRISO_SEP_P	1.0063E+00	08/26/2007	1.2	0.1		D
DUP	10098-97-2	6.18E+01		1.6E+00						L	09:13	20.0	3		

Wednesday, August 29, 2007

### TAL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05193.Edd, h:\Reportdb\edd\FeadIV\Rad\36530.Edd

Lab Sample Id: J1VP51DR

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: B1NHP8

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: DUP

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
X07-032	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
7191477	Uranium	1.08E+03	ug/L	1.3E+02		8.45E-02			UTOT_KPA	2.48E-02	08/24/2007	.0	0.		D
DUP	7440-61-1	1.08E+03		1.3E+02						ML	11:30	20.0	3		

Wednesday, August 29, 2007

### TAL Richland QC Duplicate Report

Lab Code: STLR

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\FeadIV\Rad\W05193.Edd, h:\Reportdb\edd\FeadIV\Rad\36530.Edd

Lab Sample Id: J1VPT1DR

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: B1NHM8

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: DUP

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
X07-032	MW6-SBB-A19981								AJ	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
7191478 DUP	ALPHA 12587-46-1	4.99E+00 8.75E+00	pCi/L	2.0E+00 1.7E+00		1.25E+00	100.0		9310_ALPHAB	1.497E-01 L	08/25/2007 09:06	54.7 20.0	2.6 3		D

Wednesday, August 29, 2007

### TAL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\ledd\Fead\I\Rad\W05193.Edd, h:\Reportdb\ledd\Fead\I\Rad\36530.Edd

Lab Sample Id: J1VPV1DR

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: B1NHM9

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: DUP

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
X07-032	MW6-SBB-A19981								AK	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
7191479 DUP	BETA 12587-47-2	6.54E+01 6.61E+01	pCi/L	1.1E+01 4.4E+00		3.61E+00	100.0		9310_ALPHAB	1.613E-01 L	08/25/2007 11:34	1.1 20.0	0.1 3		D

Wednesday, August 29, 2007

### TAL Richland Qc Matrix Spike Report

Lab Code: STLRL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Fead\Rad\W05193.Edd, h:\Reportdb\edd\Fead\Rad\36530.Edd

Lab Sample Id: J1VP51CW

Sdg/Rept Nbr: W05193 36530

Collection Date: 06/26/2007 11:30

Client Id: B1NHP8

Matrix: WATER WATER

Sample On Date:

Moisture/Solids%\*:

QC Type: MS

Received Date: 06/26/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
X07-032	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
7191477 MS	Uranium 7440-61-1	1.13E+03	ug/L	1.3E+02 1.3E+02		8.32E-02		3.58E+01 3153.8	UTOT_KPA	2.52E-02 ML	08/24/2007 11:25			60 140	D

Lot No., Due Date: J7F270115; 08/24/2007  
 Client, Site: 384868; PGW 615HANFORD HANFORD  
 QC Batch No., Method Test: 7191478; RALPHA-A Alpha by GPC-Am  
 SDG, Matrix: W05193; 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:

First Level Review John Koster

Date 8-27-7



# STL

Data Review Checklist  
RADIOCHEMISTRY  
Second Level Review

QC Batch Number: 7191478  
W05193

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: 8-28-07

Lot No., Due Date: J7F270115; 08/24/2007  
 Client, Site: 384868; PGW 615HANFORD HANFORD  
 QC Batch No., Method Test: 7191479; RBETA-SR Beta by GPC-Sr/Y  
 SDG, Matrix: W05193; 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:

First Level Review

*John Norton*

Date

8-27-7



# STL

## Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 7191479  
W05193

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 A. Olson Date: 8-28-07

Lot No., Due Date: J7F270115; 08/24/2007  
 Client, Site: 384868; PGW 615HANFORD HANFORD  
 QC Batch No., Method Test: 7191480; RSR85907 Sr-85/90 by GPC-7  
 SDG, Matrix: W05193; 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:

First Level Review John Porter

Date 8-27-7



# STL

Data Review Checklist  
RADIOCHEMISTRY  
Second Level Review

QC Batch Number: 7191480  
W05193

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 A. Alden Date: 8-28-07

Lot No., Due Date: J7F270115; 08/24/2007  
 Client, Site: 384868; PGW 615HANFORD HANFORD  
 QC Batch No., Method Test: 7191477; RUNAT UNat by KPA  
 SDG, Matrix: W05193; 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:

First Level Review John North

Date 8-24-7



# STL

## Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 7191477  
W05193

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: 8-24-07









<b>FLUOR HANFORD</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C. # <b>X07-032-16</b>
	<i>J7F270117 W05193 Due 08-10-07</i>	Page <u>1</u> of <u>1</u>

Collector <b>Fluor Hanford</b> <b>K. B. HULSE</b>	Contact/Requester Steve Trent	Telephone No. <b>MSIN</b> <b>FAX</b> 509-373-5869
SAF No. X07-032	Sampling Origin Hnaford Site	Purchase Order/Charge Code
Project Title SPECIAL SAMPLING, APRIL 2007	<i>HNF-N-506</i>	Ice Chest No. <i>JEEP 007</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.

<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	<b>SPECIAL INSTRUCTIONS</b> <b>Hold Time</b> Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Do not combine X SAF samples with other sets. Need SDG to be stand alone. All labs except WSCF: Do not exceed SDG closure of 14 days. WSCF: SDG will close on a daily basis; X SAF samples into own SDG.
--	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NHN5		W	<i>6/26/07</i>	<i>1130</i>	3x1000-mL G/P	SRISO_SEP_PRECIP_GPC: Sr-90 (1)	HNO3 to pH <2
B1NHN5		W	<i>↓</i>	<i>↓</i>	1x20-mL P	Activity Scan	None
<i>JIVP4</i>							

Relinquished By <b>Fluor Hanford</b> <b>K. B. HULSE</b>	Print	Sign <i>K. B. Hulse</i>	Date/Time <i>1405</i>	Received By <b>L.D. Wau</b> <i>L.D. Wau</i>	Print	Sign <i>L.D. Wau</i>	Date/Time <i>1405</i>	<b>Matrix *</b> S = Soil                      DS = Drum Solid SF = Sediment              DL = Drum Liquid SO = Solid                    T = Tissue SL = Sludge                  WI = Wine W = Water                    L = Liquid O = Oil                        V = Vegetation A = Air                        X = Other
Relinquished By <i>L.D. Wau</i>		Sign <i>L.D. Wau</i>	Date/Time <i>6/26/07 1405</i>	Received By <i>S. Smith</i>		Sign <i>S. Smith</i>	Date/Time <i>6/26/07 1405</i>	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
<b>FINAL SAMPLE DISPOSITION</b>	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: 6/26/06 1405

Client: PGW SDG #: W05792 NA  SAF #: X07-032 NA

Work Order Number: J7F270115 Chain of Custody # X07-032, 9, 10, 15, 16, 17, 29

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: 6
7. Sample holding times exceeded? NA  Yes  No
8. Samples have:
  - \_\_\_\_\_ tape \_\_\_\_\_ hazard labels
  - \_\_\_\_\_ custody seals \_\_\_\_\_ appropriate samples labels
9. Samples are:
  - \_\_\_\_\_ /in good condition \_\_\_\_\_ leaking
  - \_\_\_\_\_ broken \_\_\_\_\_ 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: S. Smith Date: 06/26/07

Client Sample ID	Analysis Requested	Condition	Comments/Action

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

No action necessary; process as is.

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

8/17/2007 10:43:52 AM

### Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory  
Pacific Northwest National Lab

AZ Gross Alpha PrpRC5014  
S7 Gross Alpha by GPC using Am-241 curve  
5I CLIENT: HANFORD

Pipet #: 246

AnalyDueDate: 08/24/2007 WOS193

Sep1 DT/Tm Tech:

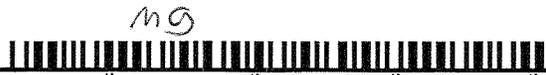
Batch: 7191478 WATER pCi/L

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BockJ



Work Order, Lot, Sample Date/Time	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 J1VPT-1-AA J7F270115-1-SAMP 06/26/2007 11:30	149.10g,in					100	10A		0957	8/25/07 k
<p>AmtRec: 20ML,LP #Containers: 2 Scr: Alpha: -2.39E-04 uCi/Sa Beta: 9.64E-05 uCi/Sa</p> <p>Handwritten: 41.2</p>										
2 J1VPT-1-AD-X J7F270115-1-DUP 06/26/2007 11:30	149.70g,in						10B			
<p>AmtRec: 20ML,LP #Containers: 2 Scr: Alpha: -2.39E-04 uCi/Sa Beta: 9.64E-05 uCi/Sa</p> <p>Handwritten: 43.5</p>										
3 J1VPV-1-AA J7F270115-2-SAMP 06/26/2007 11:30	151.40g,in						10C			
<p>AmtRec: 20ML,LP #Containers: 2 Scr: Alpha: -5.50E-06 uCi/Sa Beta: -2.33E-05 uCi/Sa</p> <p>Handwritten: 40.0</p>										
4 J2K84-1-AA-B J7G100000-478-BLK 06/26/2007 11:30	201.00g,in						10D			
<p>AmtRec: #Containers: 1 Scr: Alpha: Beta:</p> <p>Handwritten: 1.8</p>										
5 J2K84-1-AC-C J7G100000-478-LCS 06/26/2007 11:30	199.30g,in		ASD4257 07/23/07.pd 06/01/01.r				10E			
<p>AmtRec: #Containers: 1 Scr: Alpha: Beta:</p> <p>Handwritten: 2.1</p>										

Comments: Aliquots reduced due to weight screens. PH C20938-17-01

DH 8/24/07

All Clients for Batch:

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

J1VPT1AA-SAMP Constituent List:

ALPHA RDL:3 pCi/L LCL: UCL: RPD:

8/17/2007 10:43:54 AM

### Sample Preparation/Analysis

Balance Id:1120482733

AZ Gross Alpha PrpRC5014  
S7 Gross Alpha by GPC using Am-241 curve  
5I CLIENT: HANFORD

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

AnalyDueDate: 08/24/2007

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

Batch: 7191478

pCi/L

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

SEQ Batch, Test: None

Prep Tech: ,BockJ



Work Order, Lot, Sample Date/Time	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:
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J2K841AA-BLK:

ALPHA RDL:3 pCi/L LCL: UCL: RPD:

J2K841AC-LCS:

Am-241 RDL: pCi/L LCL:70 UCL:130 RPD:20

J1VPT1AA-SAMP Calc Info:

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

J2K841AA-BLK:

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

J2K841AC-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: 8/27/2006, 9/1/2007, Batch: '7191478', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>7191478</b>				
AC		<b>CalcC</b>	<b>BockJ</b> 8/17/2007 10:40:31	
SC		wagarr	IsBatched 7/10/2007 4:38:17 PM	ICOC_RADCALC v4.8.26
SC		BockJ	InPrep 8/17/2007 10:40:31 AM	RICH-RC-5014 Revision 7
SC		BockJ	Prep1C 8/17/2007 10:43:56 AM	RICH-RC-5014 REVISION 7
SC		AshworthA	InPrep2 8/24/2007 9:27:42 AM	RICH-RC-5014 REVISION 7
SC		HARBINSOND	Prep2C 8/24/2007 5:18:42 PM	RICH-RC-5014 REVISION 7
SC		DAWKINSO	InCnt1 8/24/2007 5:46:07 PM	RICH-RD-0003 REVISION 5
SC		StringerR	CalcC 8/25/2007 10:33:38 AM	RICH-RD-0003 REVISION 5
AC		<b>BockJ</b>	8/17/2007 10:43:56	
AC		<b>AshworthA</b>	8/24/2007 9:27:42	
AC		<b>HARBINSOND</b>	8/24/2007 5:18:42 PM	
AC		<b>DAWKINSO</b>	8/24/2007 5:46:07 PM	
AC		<b>StringerR</b>	8/25/2007 10:33:38	

AC: Accepting Entry; SC: Status Change

8/17/2007 10:40:10 AM

### Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory  
Pacific Northwest National Lab

BC Gross Beta PrpRC5014  
S8 Gross Beta by GPC using Sr/Y-90 curve  
5I CLIENT: HANFORD

Pipet #: 246

AnalyDueDate: 08/24/2007 W05193

Sep1 DT/Tm Tech:

Batch: 7191479 WATER pCi/L  
SEQ Batch, Test: None

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

Prep Tech: ,BockJ



Work Order, Lot, Sample Date/Time	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 J1VPT-1-AC J7F270115-1-SAMP 06/26/2007 11:30	165.20g,in				80.9	100	32d	1044		8/25/07 r
AmtRec: 20ML,LP #Containers: 2			Scr: Alpha: -2.39E-04 uCi/Sa Beta: 9.64E-05 uCi/Sa							
2 J1VPV-1-AC J7F270115-2-SAMP 06/26/2007 11:30	160.90g,in				86.1		32a	1230		8/25/07 r
AmtRec: 20ML,LP #Containers: 2			Scr: Alpha: -5.50E-06 uCi/Sa Beta: -2.33E-05 uCi/Sa							
3 J1VPV-1-AD-X J7F270115-2-DUP 06/26/2007 11:30	161.30g,in				79.0		32b			
AmtRec: 20ML,LP #Containers: 2			Scr: Alpha: -5.50E-06 uCi/Sa Beta: -2.33E-05 uCi/Sa							
4 J2K86-1-AA-B J7G100000-479-BLK 06/26/2007 11:30	200.50g,in				0.5		32c			
AmtRec: #Containers: 1			Scr: Alpha: Beta:							
5 J2K86-1-AC-C J7G100000-479-LCS 06/26/2007 11:30	198.40g,in		BESB3106 07/23/07,pd 10/11/06,r		1.0		32d			
AmtRec: #Containers: 1			Scr: Alpha: Beta:							

Comments: Aliquots reduced due to weight screens. PH < 2.0 JS 8-17-07

DH 8/24/07

All Clients for Batch:

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

J1VPT1AC-SAMP Constituent List:

BETA RDL:4 pCi/L LCL: UCL: RPD:

8/17/2007 10:40:12 AM

### Sample Preparation/Analysis

Balance Id:1120482733

BC Gross Beta PrpRC5014  
S8 Gross Beta by GPC using Sr/Y-90 curve  
5I CLIENT: HANFORD

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

AnalyDueDate: 08/24/2007

Sep1 DT/Tm Tech:

Batch: 7191479  
SEQ Batch, Test: None

pCi/L

Sep2 DT/Tm Tech:

Prep Tech: ,BockJ



Work Order, Lot, Sample Date/Time	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:
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J2K861AA-BLK:

BETA RDL:4 pCi/L LCL: UCL: RPD:

J2K861AC-LCS:

Sr-90 RDL: pCi/L LCL:70 UCL:130 RPD:20

J1VPT1AC-SAMP Calc Info:

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

J2K861AA-BLK:

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

J2K861AC-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: 8/27/2006, 9/1/2007, Batch: '7191479', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>7191479</b>				
AC	<b>CalcC</b>	<b>BockJ</b>	8/17/2007 10:37:42	
SC		wagarr	IsBatched 7/10/2007 4:38:17 PM	ICOC_RADCALC v4.8.26
SC		BockJ	InPrep 8/17/2007 10:37:42 AM	RICH-RC-5014 Revision 7
SC		BockJ	Prep1C 8/17/2007 10:40:13 AM	RICH-RC-5014 REVISION 7
SC		AshworthA	InPrep2 8/24/2007 9:27:50 AM	RICH-RC-5014 REVISION 7
SC		HARBINSOND	Prep2C 8/24/2007 5:19:15 PM	RICH-RC-5014 REVISION 7
SC		DAWKINSO	InCnt1 8/24/2007 5:45:55 PM	RICH-RD-0003 REVISION 5
SC		StringerR	CalcC 8/25/2007 12:56:20 PM	RICH-RD-0003 REVISION 5
AC		<b>BockJ</b>	8/17/2007 10:40:13	
AC		<b>AshworthA</b>	8/24/2007 9:27:50	
AC		<b>HARBINSOND</b>	8/24/2007 5:19:15 PM	
AC		<b>DAWKINSO</b>	8/24/2007 5:45:55 PM	
AC		<b>StringerR</b>	8/25/2007 12:56:20	

AC: Accepting Entry; SC: Status Change

8/14/2007 10:51:34 AM

### Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory  
Pacific Northwest National Lab

CL Sr-90 Prp/SepRC5006(5071)  
TL Sr-85 by Nal and Sr-90 by GPC 7 day ingrowth  
5I CLIENT: HANFORD

Pipet #: DEM

AnalyDueDate: 08/24/2007 W05193

Sep1 DT/Tm Tech: 8/14/07 1:56:37 PM

Batch: 7191480 WATER pCi/L PM, Quote: SA, 57671

Sep2 DT/Tm Tech: 8-24-07 2:50 PM

SEQ Batch, Test: None All Tests: 7191477 DHSS, 7191478 AZS7, 7191479 BCS8, 7191480 CLTL,

Prep Tech: ,BockJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 J1VP0-1-AA J7F270115-3-SAMP  YTA17689 Ex:6/10/2006	1006.40g,in	SRTB15123 08/01/07,pd 05/22/07,r	<u>1.674</u> <u>2.0687</u> <u>1.966</u> <u>0.8092</u>	<u>246</u>	100	9"	1443	29 29	1113 1005	8/17/07 <u>RP</u> 8/25/07 <u>r</u> 8/26/07 <u>r</u>	
06/26/2007 11:30	AmtRec: 20ML,3XLP	#Containers: 4						Scr:	Alpha: -5.68E-04 uCi/Sa	Beta: 2.24E-04 uCi/Sa	
2 J1VP0-1-AC-X J7F270115-3-DUP  YTA17690 Ex:6/10/2006	1006.30g,in	SRTB15124 08/08/07,pd 05/22/07,r	<u>1.739</u> <u>1.9880</u> <u>0.8747</u>	<u>235</u>		3"	1444	2b 2b	1113 1005	8/17/07 <u>RP</u> 8/25/07 <u>r</u> 8/26/07 <u>r</u>	
06/26/2007 11:30	AmtRec: 20ML,3XLP	#Containers: 4						Scr:	Alpha: -5.68E-04 uCi/Sa	Beta: 2.24E-04 uCi/Sa	
3 J1VP2-1-AA J7F270115-4-SAMP  YTA17691 Ex:6/10/2006	1009.50g,in	SRTB15125 08/08/07,pd 05/22/07,r	<u>1.624</u> <u>1.9995</u> <u>0.8122</u>	<u>244</u>		9"	1522	2c 2c	1113 1005	8/17/07 <u>RP</u> 8/25/07 <u>r</u> 8/26/07 <u>r</u>	
06/26/2007 11:30	AmtRec: 20ML,3XLP	#Containers: 4						Scr:	Alpha: -3.49E-04 uCi/Sa	Beta: 3.22E-04 uCi/Sa	
4 J1VP4-1-AA J7F270115-5-SAMP  YTA17692 Ex:6/10/2006	1011.40g,in	SRTB15126 08/08/07,pd 05/22/07,r	<u>1.738</u> <u>2.0111</u> <u>0.8642</u>	<u>246</u>		3"	1522	2d 2d	1113 1005	8/17/07 <u>RP</u> 8/25/07 <u>r</u> 8/26/07 <u>r</u>	
06/26/2007 11:30	AmtRec: 20ML,3XLP	#Containers: 4						Scr:	Alpha: 1.33E-04 uCi/Sa	Beta: 2.89E-04 uCi/Sa	

8/14/2007 10:51:35 AM

### Sample Preparation/Analysis

Balance Id:1120482733

CL Sr-90 Prp/SepRC5006(5071)  
TL Sr-85 by NaI and Sr-90 by GPC 7 day ingrowth  
5I CLIENT: HANFORD

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

AnalyDueDate: 08/24/2007

Sep1 DT/Tm Tech:

Batch: 7191480

pCi/L

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BockJ



Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
5 J2K88-1-AA-B J7G100000-480-BLK		997.90g,in	SRTB15127 08/08/07,pd 05/22/07,r	1.583 2.0110 0.7872			100	9"	1558 1113 1005	8/17/0700 8/25/07 8/26/07	
		YTA17693 Ex:6/10/2008				253		3a 3a			
06/26/2007 11:30		AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:	
6 J2K88-1-AC-C J7G100000-480-LCS		1000.50g,in	SRS1367 07/17/07,pd 05/22/07,r	1.635 1.9973 0.8186			100	3"	1558 1113 1005	8/17/0700 8/25/07 8/26/07	
		YTA17694 Ex:6/10/2008				250		3b 3b			
06/26/2007 11:30		AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:	

Comments: PHCZO JB 8.14.07

All Clients for Batch:

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

J1VP01AA-SAMP Constituent List:

Sr-85	RDL:	pCi/L	LCL:20	UCL:105	RPD:20	Sr-90	RDL:2	pCi/L	LCL:70	UCL:130	RPD:20
J2K881AA-BLK:											
Sr-85	RDL:	pCi/L	LCL:20	UCL:105	RPD:20	Sr-90	RDL:2	pCi/L	LCL:	UCL:	RPD:
J2K881AC-LCS:											
Sr-85	RDL:	pCi/L	LCL:20	UCL:105	RPD:20	Sr-90	RDL:2	pCi/L	LCL:70	UCL:130	RPD:20

J1VP01AA-SAMP Calc Info:

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

J2K881AA-BLK:

8/14/2007 10:51:36 AM

### Sample Preparation/Analysis

Balance Id:1120482733

CL Sr-90 Prp/SepRC5006(5071)  
TL Sr-85 by NaI and Sr-90 by GPC 7 day ingrowth  
5I CLIENT: HANFORD

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

AnalyDueDate: 08/24/2007

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

Batch: 7191480  
SEQ Batch, Test: None

pCi/L

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

Prep Tech: ,BockJ



Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B							
J2K881AC-LCS:											
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B							

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

8/27/2007 9:52:21 AM

# ICOC Fraction Transfer/Status Report

ByDate: 8/27/2006, 9/1/2007, Batch: '7191480', User: \*ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
	7191480				
AC		CalcC	BockJ	8/14/2007 9:55:32	
SC			wagarr	IsBatched 7/10/2007 4:38:17 PM	ICOC_RADCALC v4.8.26
SC			BockJ	InPrep 8/14/2007 9:55:32 AM	RICH-RC-5016 Revision 7
SC			ManisD	InSep1 8/14/2007 12:28:13 PM	RICH-RC-5006 REVISION 7
SC			ManisD	Sep1C 8/17/2007 2:09:00 PM	RICH-RC-5006 REVISION 7
SC			DAWKINSO	InCnt1 8/17/2007 2:14:34 PM	RICH-RD-0007 REVISION 6
SC			DAWKINSO	Cnt1C 8/17/2007 6:01:07 PM	RICH-RD-0007 REVISION 6
SC			FABREM	Sep2C 8/24/2007 6:24:40 PM	RICH-RC-5071 REVISION 5
SC			DAWKINSO	InCnt2 8/24/2007 7:11:22 PM	RICH-RD-0003 REVISION 5
SC			StringerR	CalcC 8/26/2007 10:40:02 AM	RICH-RD-0003 REVISION 5
AC			ManisD	8/14/2007 12:28:13	
AC			ManisD	8/17/2007 2:09:00 PM	
AC			DAWKINSO	8/17/2007 2:14:34 PM	
AC			DAWKINSO	8/17/2007 6:01:07 PM	
AC			FABREM	8/24/2007 6:24:40 PM	
AC			DAWKINSO	8/24/2007 7:11:22 PM	
AC			StringerR	8/26/2007 10:40:02	

AC: Accepting Entry; SC: Status Change

8/16/2007 5:04:27 PM

### Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory ,  
Pacific Northwest National Lab

DH UNat\_Laser PrpRC5015  
SS Total Uranium by KPA  
5I CLIENT: HANFORD

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

AnalyDueDate: 08/24/2007 **W005193**

Sep1 DT/Tm Tech:

Batch: 7191477 WATER ug/L  
SEQ Batch, Test: None

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

Prep Tech: ,BockJ



Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 J1VP5-1-AA J7F270115-6-SAMP 	25.90g,in							
06/26/2007 11:30	AmtRec: 20ML,500MLP	#Containers: 2				Scr: Alpha: 4.41E-04 uCi/Sa 2.0E-01L	Beta: 7.00E-05 uCi/Sa	
2 J1VP5-1-AC-S J7F270115-6-MS 	25.20g,in		UNSF3883 08/15/07,pd 01/23/07.r					
06/26/2007 11:30	AmtRec: 20ML,500MLP	#Containers: 2				Scr: Alpha: 4.41E-04 uCi/Sa 2.0E-01L	Beta: 7.00E-05 uCi/Sa	
3 J1VP5-1-AD-X J7F270115-6-DUP 	24.80g,in							
06/26/2007 11:30	AmtRec: 20ML,500MLP	#Containers: 2				Scr: Alpha: 4.41E-04 uCi/Sa 2.0E-01L	Beta: 7.00E-05 uCi/Sa	
4 J2K8L-1-AA-B J7G100000-477-BLK 	25.30g,in							
06/26/2007 11:30	AmtRec:	#Containers: 1				Scr:	Alpha:	Beta:
5 J2K8L-1-AC-C J7G100000-477-LCS 	27.00g,in		UNSF3884 08/15/07,pd 01/23/07.r					
06/26/2007 11:30	AmtRec:	#Containers: 1				Scr:	Alpha:	Beta:
6 J2K8L-1-AD-C J7G100000-477-LCS 	25.30g,in		UNSC1820 08/01/07,pd 04/28/06.r					
06/26/2007 11:30	AmtRec:	#Containers: 1				Scr:	Alpha:	Beta:

8/16/2007 5:04:29 PM

### Sample Preparation/Analysis

Balance Id:1120482733

DH UNat\_Laser PrpRC5015  
SS Total Uranium by KPA  
5I CLIENT: HANFORD

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

AnalyDueDate: 08/24/2007

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

Batch: 7191477 ug/L  
SEQ Batch, Test: None

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

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:
--------------------------------------	-------------------	-----------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------	-----------

Comments: PA < 20 JB 8-14-07

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

J1VP51AA-SAMP Constituent List:

Uranium RDL:1.44E-01 ug/L LCL: UCL: RPD:

J1VP51AC-MS Constituent List:

J2K8L1AA-BLK:

Uranium RDL:1.44E-01 ug/L LCL: UCL: RPD:

J2K8L1AC-LCS:

Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20

J2K8L1AD-LCS:

Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20

J1VP51AA-SAMP Calc Info:

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

J1VP51AC-MS Calc Info:

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

J2K8L1AA-BLK:

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

J2K8L1AC-LCS:

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

J2K8L1AD-LCS:

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

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

8/24/2007 2:01:51 PM

# ICOC Fraction Transfer/Status Report

ByDate: 8/24/2006, 8/29/2007, Batch: '7191477', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>7191477</b>				
AC		<b>Cnt1C</b>	<b>BockJ</b>	8/9/2007 11:47:19
SC			wagarr	IsBatched 7/10/2007 4:38:17 PM
SC			BockJ	InPrep 8/9/2007 11:47:19 AM
SC			BockJ	Prep1C 8/16/2007 5:04:28 PM
SC			AshworthA	InPrep2 8/22/2007 1:37:00 PM
SC			AshworthA	Prep2C 8/23/2007 6:31:26 PM
SC			NelsonT	Cnt1C 8/24/2007 11:40:14 AM
AC			<b>BockJ</b>	8/16/2007 5:04:28 PM
AC			<b>AshworthA</b>	8/22/2007 1:37:00 PM
AC			<b>AshworthA</b>	8/23/2007 6:31:26 PM
AC			<b>NelsonT</b>	8/24/2007 11:40:14

ICOC\_RADCALC v4.8.26  
 RICH-RC-5014 Revision 7  
 RICH-RC-5015 REVISION 6  
 RICH-RC-5015 REVISION 6  
 RICH-RC-5015 REVISION 6  
 RICH-RC-5058 REV 7

AC: Accepting Entry, SC: Status Change

8/27/2007 3:54:03 PM

## Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix	Received Date	Sample Date	Units	Expected Yield	Volumes
W05193	9J1VPT10		J7F2701151	B1NHM8	WATER	6/26/2007 2:05:00	6/26/2007 11:30:00 AM			
ALPHA	AZS7	0	8/25/2007 9:06:25 AM	8.7456E+00	1.094E+00	1.495E+00	1.51E+00	pCi/L	1.0	1.491E-1
W05193	9J1VPV10		J7F2701152	B1NHM9	WATER	6/26/2007 2:05:00	6/26/2007 11:30:00 AM			
ALPHA	AZS7	0	8/25/2007 9:06:25 AM	6.0051E+00	9.187E-01	1.147E+00	1.728E+00	pCi/L	1.0	1.514E-1
W05193	J1VPT1DR		J7F2701151	B1NHM8 DUP	WATER	6/26/2007 2:05:00	6/26/2007 11:30:00 AM			
ALPHA	AZS7	0 R	8/25/2007 9:06:25 AM	4.9901E+00	8.466E-01	1.016E+00	1.252E+00	pCi/L	1.0	1.497E-1
W05193	J2K841AB		J7G100000478	INTRA-LAB BLANK	WATER	6/26/2007 2:05:00	6/26/2007 11:30:00 AM			
ALPHA	AZS7	0 B	8/25/2007 9:06:25 AM	-1.5646E-01	6.597E-02	6.841E-02	5.614E-01	pCi/L	1.0	2.01E-1
W05193	J2K841CS		J7G100000478	INTRA-LAB CHECK	WATER	6/26/2007 2:05:00	6/26/2007 11:30:00 AM			
ALPHA	AZS7	0 S	8/25/2007 9:06:25 AM	2.0337E+01	1.038E+00	2.567E+00	6.739E-01	pCi/L	2.2647E+01	1.993E-1

7191478, \*\*Samples Inserted | Updated | NotUpdated => 5 | 0 | 0,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 5 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtimes => .

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld	
Alpha by GPC-Am			Richland Standard Gross Alpha/Beta Wo Blk Subt												
Calc	S7	WATER	J1VPT1AA	ALPHA	8.75E+00	(1.50E+00)		pCi/L	R	5.82E-01	1.51E+00		100%		
Calc	S7	WATER	J1VPT1AD	ALPHA	4.99E+00	(1.02E+00)		pCi/L	R	4.44E-01	1.25E+00	R	100%		
Calc	S7	WATER	J1VPV1AA	ALPHA	6.01E+00	(1.15E+00)		pCi/L	R	6.98E-01	1.73E+00		100%		
Calc	S7	WATER	J2K841AA	ALPHA	-1.56E-01	(6.84E-02)	U4	pCi/L	R	2.10E-01	5.61E-01	B	100%		
Calc	S7	WATER	J2K841AC	ALPHA	2.03E+01	(2.57E+00)		pCi/L	R	2.66E-01	6.74E-01	S	100%	90%	

Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
1	Calc	S7	WATER	*STLE	GabWoBS	J1VPT1AA	pCi/L		06/26/07 11:30	08/25/07 09:06			1	g				
							384868,B1NHM8			41.2				149.10 g				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	08/25/07 09:56	ALPHA	72	19	GPC10A	1.5	N	N	2.3559E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			100	500			Y		(1.614E-02)	(0.000E+00)		8%			(0.000E+00)	0.006707		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdc/LcC				
	08/25/07	ALPHA	R	8.745619		6.82000E-01	2.89482	2.89482	0.1491 L	100%	1.509904							
				(1.495427)		(8.5299E-02)	(0.473343)	(0.473343)	(0.173205)		0.581539							

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
2	Calc	S7	WATER	*STLE	GabWoBS	J1VPT1AD	pCi/L	R	06/26/07 11:30	08/25/07 09:06			1	g				
							384868,B1NHM8 DUP			43.5				149.70 g				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	08/25/07 09:56	ALPHA	39	10	GPC10B	1.5	N	N	2.2311E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			100	500			Y		(1.368E-02)	(0.000E+00)		8%			(0.000E+00)	0.00668		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdc/LcC				
	08/25/07	ALPHA	R	4.990092		3.70000E-01	1.658379	1.658379	0.1497 L	100%	1.252391							
				(1.015844)		(6.2769E-02)	(0.327253)	(0.327253)	(0.173205)		0.443714							

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
3	Calc	S7	WATER	*STLE	GabWoBS	J1VVPV1AA	pCi/L		06/26/07 11:30	08/25/07 09:06			1	g				
							384868,B1NHM9			40.0				151.40 g				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	08/25/07 09:56	ALPHA	55	30	GPC10C	1.5	N	N	2.4277E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			100	500			Y		(1.567E-02)	(0.000E+00)		8%			(0.000E+00)	0.006605		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdc/LcC				
	08/25/07	ALPHA	R	6.005107		4.90000E-01	2.018367	2.018367	0.1514 L	100%	1.728016							
				(1.14686)		(7.4967E-02)	(0.372017)	(0.372017)	(0.173205)		0.698363							

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
4	Calc	S7	WATER	*STLE	GabWoBS	J2K841AA	pCi/L	B	06/26/07 11:30	08/25/07 09:06			1	g				
							0,INTRA-LAB BLANK			01.8				201.00 g				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	08/25/07 09:56	ALPHA	0	15	GPC10D	1.5	N	N	4.2971E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			100	500			Y		(2.883E-02)	(0.000E+00)		8%			(0.000E+00)	0.004975		

Batch Nbr: 7191478

## Alpha Beta, Alpha by GPC-Am , Calculated Results

8/25/2007 10:12:22 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdC/LcC				
	08/25/07	ALPHA	R	-0.156457 (0.06841)	U4	-3.00000E-02 (1.2649E-02)	-0.069814 (0.030325)	-0.069814 (0.030325)	0.201 L (0.173205)	100%		0.56137 0.210143						
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol			
5	Calc	S7	WATER	*STLE	GabWoBS	J2K841AC	pCi/L	S	06/26/07 11:30	08/25/07 09:06		ASD4257	1	g				
0	INTRA-LAB CHECK				J7G100000-478		WATER			02.1		ASD4257 Alq		199.30 g				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	08/25/07 09:56	ALPHA	394 ✓	24	GPC10F	1.5	N	N	4.3254E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E+02	1.0000E+00	
			100	500			Y		(2.878E-02)	(0.000E+00)		8%			(0.000E+00)	0.005018		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdC/LcC				
	08/25/07	ALPHA	R	20.336778 (2.567249)		3.89200E+00 (1.9874E-01)	8.997935 (1.042945)	8.997935 (1.042945)	0.1993 L (0.173205)	100%	90%	0.673937 0.266324						

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 \* TPU

Page 2

RecCnt:5

RADCALC v4.8.26

IDC - Instrument Detection Level in Conc Units, MLcC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration

Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significants, Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Time Stamp	Log Entry	User
8/25/2007 10:11:25	Loaded IDB Rows => 5	StringerR
8/25/2007 10:11:26	Inserted IDB Rows => 5	StringerR
8/25/2007 10:12:05	***** Calculating .... _AB_v, 8/25/2007 10:12:00 AM	StringerR
8/25/2007 10:12:05	Project=>*STLE,S7,8,pCi/Unit,BlkSubt:N,MDAc:2.71E00,UncertTy:0P1,Spk:,SpkRelU:3.00E-02,Trc:	StringerR
8/25/2007 10:12:06	,TrcRelU:3.00E-02,Sep1:,Sep2:,VolU:1.00E-02,FlowU:2.00E-02,MassU:1.00E-02,MethSys:5.00E-02	StringerR
8/25/2007 10:12:06	=>Start 217362, J1VPT1AA, 0, ALPHA	StringerR
8/25/2007 10:12:07	=> Calc	StringerR
8/25/2007 10:12:07	Project=>*STLE,S7,8,pCi/Unit,BlkSubt:N,MDAc:2.71E00,UncertTy:0P1,Spk:,SpkRelU:3.00E-02,Trc:	StringerR
8/25/2007 10:12:07	,TrcRelU:3.00E-02,Sep1:,Sep2:,VolU:1.00E-02,FlowU:2.00E-02,MassU:1.00E-02,MethSys:5.00E-02	StringerR
8/25/2007 10:12:08	=>Start 217363, J1VPT1AD, 0, ALPHA	StringerR
8/25/2007 10:12:08	=> Calc	StringerR
8/25/2007 10:12:08	Project=>*STLE,S7,8,pCi/Unit,BlkSubt:N,MDAc:2.71E00,UncertTy:0P1,Spk:,SpkRelU:3.00E-02,Trc:	StringerR
8/25/2007 10:12:08	,TrcRelU:3.00E-02,Sep1:,Sep2:,VolU:1.00E-02,FlowU:2.00E-02,MassU:1.00E-02,MethSys:5.00E-02	StringerR
8/25/2007 10:12:08	=>Start 217364, J1VPV1AA, 0, ALPHA	StringerR
8/25/2007 10:12:08	=> Calc	StringerR
8/25/2007 10:12:08	Project=>*STLE,S7,8,pCi/Unit,BlkSubt:N,MDAc:2.71E00,UncertTy:0P1,Spk:,SpkRelU:3.00E-02,Trc:	StringerR
8/25/2007 10:12:08	,TrcRelU:3.00E-02,Sep1:,Sep2:,VolU:1.00E-02,FlowU:2.00E-02,MassU:1.00E-02,MethSys:5.00E-02	StringerR
8/25/2007 10:12:08	=>Start 217365, J2K841AA, 0, ALPHA	StringerR
8/25/2007 10:12:09	=> Calc	StringerR
8/25/2007 10:12:09	Project=>*STLE,S7,8,pCi/Unit,BlkSubt:N,MDAc:2.71E00,UncertTy:0P1,Spk:,SpkRelU:3.00E-02,Trc:	StringerR
8/25/2007 10:12:09	,TrcRelU:3.00E-02,Sep1:,Sep2:,VolU:1.00E-02,FlowU:2.00E-02,MassU:1.00E-02,MethSys:5.00E-02	StringerR
8/25/2007 10:12:09	=>Start 217366, J2K841AC, 0, ALPHA	StringerR
8/25/2007 10:12:13	=> Calc	StringerR
8/25/2007 10:12:13	***** Calculation Complete... _AB_v, 8/25/2007 10:12:14 AM	StringerR