ENVIRONMENTAL STANDARDS

Setting the Standards for Innovative Environmental Solutions

February 2, 2007

Mr. Chuck Zimmerman
Brown and Caldwell
3264 Goni Road, Suite 153
Carson City, NV 89706

Dear Mr. Zimmerman:

Enclosed is the quality assurance review of the analytical data for the analyses of five filter samples that were collected on October 8, 2007, in association with the ARCO Yerington Mine Site (Event 104). The samples were analyzed for gross alpha, radium-226, radium-228, thorium-228, thorium-230, and thorium-232.

Based on this quality assurance review, one gross alpha result and two thorium-230 results were qualified as estimated due to positive results reported between the method detection limit and the reporting limit.

If you have any questions or comments, please do not hesitate to call.

Sincerely,

Konstadina Vlahogiani, M.S.
Senior Quality Assurance Chemist III/
Project Manager

Concurred by:

Rock J. Vitale, CEAC, CPC
Technical Director of Chemistry/
Principal

KV/RJV:hm
Enc.

cc: Ms. Susie Kocsis – Brown and Caldwell

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ENVIRONMENTAL STANDARDS

Setting the Standards for Innovative Environmental Solutions

QUALITY ASSURANCE REVIEW

OF THE FILTER SAMPLES COLLECTED AT THE

ARCO YERINGTON MINE SITE

ON OCTOBER 8, 2006 (EVENT 104)

February 2, 2007

Prepared for:

ATLANTIC RICHFIELD COMPANY
28100 Torch Parkway
Warrenville, IL 60555

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
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Issued to:

BROWN AND CALDWELL
3264 Goni Road, Suite 153
Carson City, NV 89706

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TABLE OF CONTENTS

1.0 Introduction

2.0 Findings

A. Gross Alpha Analysis

B. Radium-226 Analysis

C. Radium-228 Analysis

D. Thorium-228, Thorium-230, and Thorium-232 Analysis

3.0 Qualifier Summary Tables

A. Gross Alpha Analysis

B. Radium-226 Analysis

C. Radium-228 Analysis

D. Thorium-228, Thorium-230, and Thorium-232 Analysis

4.0 Overall Assessment

5.0 Radiological Data Qualifiers and Valid Reason Codes

6.0 Signatures

7.0 Analytical Results

8.0 Supporting Documentation

1.0 Introduction

This quality assurance (QA) review is based upon a rigorous examination of all data generated from the analyses of five filter samples that were collected by Brown and Caldwell on October 8, 2006, in association with the ARCO Yerington Mine Site (Event 104). The samples included in this QA review are specified on Table 1.

This review has been performed with guidance from the "National Functional Guidelines for Inorganic Data Review" (US EPA, 2/94). This document is not entirely applicable to the type of analyses and analytical protocols performed on the samples evaluated in this QA review, but it has been used with professional judgment to aid the data reviewer in the interpretation of the QC analysis results and in the overall evaluation of the sample data deliverables. It should also be noted that results affected by blank contamination will be designated with a "UJ" qualifier (not the "U" qualifier typically used when following the National Functional Guidelines) in order to be consistent with historical project validation protocols and the current project database.

The reported analytical results are presented as a summary of the data in Section 2. Data were examined to determine the usability of the analytical results and the compliance relative to the requirements specified in the published analytical methods, the Severn Trent Laboratories, Inc. (STL) analytical Standard Operating Procedures (SOPs), the Quality Assurance Project Plan (QAPjP) for the Atlantic Richfield Company Yerington Mine Site (September 2003), and the Technical Requirements For Environmental Laboratory Analytical Services BP Global Contract Lab Network (GCLN) (5/22/02, Revision 08). Qualifier codes have been placed next to results to enable the data user to quickly assess the qualitative and/or quantitative reliability of any result. This critical QA review identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data's end-user to best understand the usability of the analytical results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed. Details of this QA review are presented in Section 1 of this report. This report was prepared to provide a critical review of the laboratory analyses and reported analytical results. Rigorous QA reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

TABLE 1

SAMPLES INCLUDED IN THIS QUALITY ASSURANCE REVIEW

Field Sample Identification	Laboratory Sample Identification	Report Number	Matrix	Date Sample Collected	Parameters Examined
P-0773	J6K060219-1	33896	Filter	10/8/06	α, ^{226}Ra, ^{228}Ra, Th
P-0774	J6K060219-2	33896	Filter	10/8/06	α, ^{226}Ra, ^{228}Ra, Th
P-0775	J6K060219-3	33896	Filter	10/8/06	α, ^{226}Ra, ^{228}Ra, Th
P-0776 (Field Duplicate of P-0773)	J6K060219-4	33896	Filter	10/8/06	α, ^{226}Ra, ^{228}Ra, Th
000545	J6K060219-5	33896	Filter	10/8/06	α, ^{226}Ra, ^{228}Ra, Th

NOTES:

α - Gross Alpha by STL SOP RICH-RC-5014/5016 (based on US EPA Method 900.0).
^{226}Ra - Radium-226 by STL SOP RICH-RC-5005 (based on US EPA Method 903.1).
^{228}Ra - Radium-228 by STL SOP RICH-RC-5005 (based on US EPA Method 904.0).
Th - Thorium-228, Thorium-230, and Thorium-232 by STL SOP RICH-RC-5087.

2.0 Findings

Complete support documentation for this radiological analysis QA review is presented in Section 8.0 of this report.

A. Gross Alpha Analysis

Five samples were analyzed for gross alpha by STL SOP RICH-RC-5014/5016 (based on US EPA Method 900.0). The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			
Field Duplicate Precision	√			
Efficiency Checks	√			
Background Checks	√			
Sample Preparation	√			
Quantitation of Results			√	
Evaluation of Raw Data	√			

Quantitation of Results: All positive results reported at concentrations greater than the method detection limit (MDL) but less than the reporting limit (RL) were qualified as estimated and have been flagged "J" on the data tables.

B. Radium-226 Analysis

Five samples were analyzed for radium-226 by STL SOP RICH-RC-5005 (based on US EPA Method 903.1). The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			
Chemical Yield	√			
Field Duplicate Precision	√			
Instrument Performance Checks	√			
Background Checks	√			

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Sample Preparation	√			
Quantitation of Results	√			
Evaluation of Raw Data	√			

No findings were observed for the radium-226 fraction.

C. Radium-228 Analysis

Five samples were analyzed for radium-228 by STL SOP RICH-RC-5005 (based on US EPA Method 904.0). The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			
Chemical Yield	√			
Field Duplicate Precision	√			
Efficiency Checks	√			
Background Checks	√			
Sample Preparation	√			
Quantitation of Results	√			
Evaluation of Raw Data	√			

No findings were observed for the radium-228 fraction.

D. Thorium-228, Thorium-230, and Thorium-232 Analysis

Five samples were analyzed for thorium-228, thorium-230, and thorium-232 by STL SOP RICH-RC-5087. The findings offered in this report for this fraction are based on the items on the following table.

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Holding Times	√			
Blank Results	√			
LCS Recoveries	√			

Item Reviewed	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Chemical Yield	√			
Field Duplicate Precision	√			
Energy Calibration Check	√			
Efficiency Calibration Check	√			
Background Check	√			
Full Width at the Half Maximum	√			
Sample Preparation	√			
Quantitation of Results			√	
Evaluation of Raw Data	√			

Quantitation of Results: All positive results reported at concentrations greater than the MDL but less than the RL were qualified as estimated and have been flagged "J" on the data tables.

3.0 Qualifier Summary Tables

A. Gross Alpha Analysis

Analyte	Report Number	Sample	Validation Qualifier	Reason for Qualification
gross alpha	33896	P-0775	J	positive result reported between the MDL and RL

B. Radium-226 Analysis

Analyte	Report Number	Sample(s)	Validation Qualifier	Reason(s) for Qualification
Qualification of Data Was Not Warranted				

C. Radium-228 Analysis

Analyte	Report Number	Sample(s)	Validation Qualifier	Reason(s) for Qualification
Qualification of Data Was Not Warranted				

D. Thorium-228, Thorium-230, and Thorium-232 Analysis

Analyte	Report Number	Samples	Validation Qualifier	Reason for Qualification
thorium-230	33896	P-0775 and P-0776	J	positive result reported between the MDL and RL

4.0 Overall Assessment

Based on this quality assurance review, one gross alpha result and two thorium-230 results were qualified as estimated due to positive results reported between the MDL and the RL.

5.0 Radiological Data Qualifiers and Valid Reason Codes

Radiological Data Qualifiers

U Analyte not detected at the detection limit concentration.

J Reported value is an estimated concentration.

UJ Analyte not detected at an estimated detection limit concentration.

R These data were rejected and were not used for any purposes.

UR The analyte was not detected. The detection limit is unreliable and may be representative of a false negative. These data were rejected and are not usable for any purpose.

Valid Reason Codes

1 Holding time violation
2 Method blank contamination
3 Surrogate recovery
4 Matrix spike/matrix spike duplicate recovery
5 Matrix spike/matrix spike duplicate precision outside limits
6 Laboratory control sample recovery
7 Field blank contamination
8 Field duplicate precision outside limits
9 Other deficiencies (including cooler temperature)
A Absence of supporting QC
S ICV, CCV or column performance check problem
Y Initial and continuing calibration blank problem
M Interference check samples problem
O Post-digestion spike outside of 85-115%
F MSA correlation coefficient <0.995, or MSA not done
G Serial dilution problem

K	DFTPP or BFB tuning problem
Q	Initial calibration problem
X	Internal standard recovery problem
V	Second source standard calibration verification problem
L	Low bias
Z	Retention time problem
N	Counting time error (radionuclide chemistry)
W	Detector instability (radionuclide chemistry)
C	Co-elution of compounds
E	Value exceeds linear calibration range
I	Interferences present during analysis
T	Trace level compound, poor quantitation
P	1C/2C precision outside of limits
B	LCS/LCSD precision outside limits
D	Lab Dup/Rep precision outside limits
H	High bias

6.0 Signatures

Report prepared by:

Konstadina Vlahogiani, M.S.
Senior Quality Assurance Chemist III/
Project Manager

Report reviewed by:

Donald J. Lancaster, M.S.
Senior Quality Assurance Chemist II

Report reviewed and approved by:

Rock J. Vitale, CEAC, CPC
Technical Director of Chemistry/
Principal

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Date: 2/2/07

7.0 ANALYTICAL RESULTS

Arco - Yerington
SDG: 33896

			Lab Sample	9JH3NN10					9JH3NN20					9JH3NR10				
			Field Sample	P-0773					P-0773					P-0774				
			Collect Date	10/8/2006					10/8/2006					10/8/2006				
			Type	N					N					N				
			Parent															
Method	CAS Number	Chemical Name	Units	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert	Result	Qual / Reason	MDL	RDL	Uncert
E900.0	ALPHA	ALPHA, GROSS	PCI	4.81	U	5.72	20	3.7						1.86	U	4.34	20	2.4
E903.1	RA-226	RADIUM-226	PCI						0.0967	U	0.758	1	0.41					
E904.0	RA-228	RADIUM-228	PCI	0.882	U	1.85	3.1	0.86						0.842	U	1.74	3.1	0.81
ISOTH	TH-228	THORIUM-228	PCI	0.0641	U	0.256	1	0.13						-0.0191	U	0.229	1	0.085
	TH-230	THORIUM-230	PCI	0.123	U	0.246	1	0.15						0.0183	U	0.22	1	0.082
	TH-232	THORIUM-232	PCI	0.0205	U	0.246	1	0.092						0.0367	U	0.22	1	0.082

			Lab Sample	9JH3NR20					9JH3NT10					9JH3NT20				
			Field Sample	P-0774					P-0775					P-0775				
			Collect Date	10/8/2006					10/8/2006					10/8/2006				
			Type	N					N					N				
			Parent															
Method	**CAS Number**	**Chemical Name**	**Units**	**Result**	**Qual / Reason**	**MDL**	**RDL**	**Uncert**	**Result**	**Qual / Reason**	**MDL**	**RDL**	**Uncert**	**Result**	**Qual / Reason**	**MDL**	**RDL**	**Uncert**
E900.0	ALPHA	ALPHA, GROSS	PCI						6.82	J / T	5.43	20	4.1					
E903.1	RA-226	RADIUM-226	PCI	0.62	U	1.02	2	0.64						0.426	U	0.553	1	0.37
E904.0	RA-228	RADIUM-228	PCI						1.13	U	1.81	3.1	0.88					
ISOTH	TH-228	THORIUM-228	PCI						0	U	0.16	1	0.068					
	TH-230	THORIUM-230	PCI						0.288	J / T	0.153	1	0.2					
	TH-232	THORIUM-232	PCI						0	U	0.153	1	0.065					

			Lab Sample	9JH3NV10					9JH3NV20					9JH3NW10				
			Field Sample	P-0776					P-0776					000545				
			Collect Date	10/8/2006					10/8/2006					10/8/2006				
			Type	FD					FD					N				
			Parent	P-0773					P-0773									
Method	**CAS Number**	**Chemical Name**	**Units**	**Result**	**Qual / Reason**	**MDL**	**RDL**	**Uncert**	**Result**	**Qual / Reason**	**MDL**	**RDL**	**Uncert**	**Result**	**Qual / Reason**	**MDL**	**RDL**	**Uncert**
E900.0	ALPHA	ALPHA, GROSS	PCI	1.98	U	4.99	20	2.6						2.19	U	4.63	20	2.6
E903.1	RA-226	RADIUM-226	PCI						0.461	U	0.586	1	0.39					
E904.0	RA-228	RADIUM-228	PCI	1.2	U	1.76	3.1	0.88						0.219	U	2.07	3.1	0.85
ISOTH	TH-228	THORIUM-228	PCI	0.078	U	0.312	1	0.16						0.148	U	0.53	1	0.27
	TH-230	THORIUM-230	PCI	0.699	J / T	0.3	1	0.4						0.236	U	0.283	1	0.22
	TH-232	THORIUM-232	PCI	0	U	0.3	1	0.11						0.0473	U	0.283	1	0.11

Lab Sample	9JH3NW20
Field Sample	000545
Collect Date	10/8/2006
Type	N
Parent	

Method	CAS Number	Chemical Name	Units	Result	Qual / Reason	MDL	RDL	Uncert
E900.0	ALPHA	ALPHA, GROSS	PCI					
E903.1	RA-226	RADIUM-226	PCI	0.205	U	0.345	1	0.22
E904.0	RA-228	RADIUM-228	PCI					
ISOTH	TH-228	THORIUM-228	PCI					
	TH-230	THORIUM-230	PCI					
	TH-232	THORIUM-232	PCI					

8.0 SUPPORTING DOCUMENTATION

Analytical Data Package Prepared For

Brown and Caldwell

Yerington Air Quality - Event #104

Radiochemical Analysis By

STL Richland

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

Assigned Laboratory Code: STLR

Data Package Contains _____ Pages

Report No.: 33896

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
32994		000545	J6K060219-5	JH3NW1AA	9JH3NW10	6311391
	Event 104	000545	J6K060219-5	JH3NW1AE	9JH3NW10	6311393
		000545	J6K060219-5	JH3NW1AD	9JH3NW10	6311396
		000545	J6K060219-5	JH3NW2AC	9JH3NW20	6325489
		P-0773	J6K060219-1	JH3NN1AA	9JH3NN10	6311391
		P-0773	J6K060219-1	JH3NN1AE	9JH3NN10	6311393
		P-0773	J6K060219-1	JH3NN1AD	9JH3NN10	6311396
		P-0773	J6K060219-1	JH3NN2AC	9JH3NN20	6325489
		P-0774	J6K060219-2	JH3NR1AA	9JH3NR10	6311391
		P-0774	J6K060219-2	JH3NR1AE	9JH3NR10	6311393
		P-0774	J6K060219-2	JH3NR1AD	9JH3NR10	6311396
		P-0774	J6K060219-2	JH3NR2AC	9JH3NR20	6325489
		P-0775	J6K060219-3	JH3NT1AA	9JH3NT10	6311391
		P-0775	J6K060219-3	JH3NT1AE	9JH3NT10	6311393
		P-0775	J6K060219-3	JH3NT1AD	9JH3NT10	6311396
		P-0775	J6K060219-3	JH3NT2AC	9JH3NT20	6325489
		P-0776	J6K060219-4	JH3NV1AA	9JH3NV10	6311391
		P-0776	J6K060219-4	JH3NV1AE	9JH3NV10	6311393
		P-0776	J6K060219-4	JH3NV1AD	9JH3NV10	6311396
		P-0776	J6K060219-4	JH3NV2AC	9JH3NV20	6325489

SEVERN TRENT STL

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Richland, WA 99354

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Certificate of Analysis

December 5, 2006

Brown & Caldwell
2701 Prospect Park Drive
Rancho Cordova, CA 95670

Attention: Guy Graening

Date Received at Lab	:	November 3, 2006
Project Name	:	Air Quality Monitoring Yerington Mine
Project Number	:	121243
Event Number	:	104
PO Number	:	129682.001
Sample Type	:	Five (5) Filters
SDG Number	:	32994

CASE NARRATIVE

I. Introduction

On November 3, 2006, five filter samples were received at the STL Richland (STLR) laboratory for radiochemical analysis. Upon receipt, the samples were assigned the STLR identification numbers as described on the cover page of the Analytical Data Package report form. The samples were assigned to Lot Number J6K060219.

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 uncertainties.

The analysis requested was:

Alpha Spectroscopy
Thorium-228, -230, -232 by method RICH-RC-5087
Gas Proportional Counters
Gross Alpha by method STL-RICHRC5016/5014
Radium-228 by method STL RICH-RC-5005
Alpha Scintillation Counter
Radium-226 by method STL RICH-RC-5005

IV. Quality Control

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

V. Comments

Thorium-228, -230, -232:

The LCS, batch blank and sample results are within analytical requirements.

Gross Alpha Analysis:

The LCS, batch blank and sample results are within analytical requirements.

Radium-228 Analysis:

<MDA

The LCS in this batch was added to the blank during the prep procedure. The blank was then recalculated as the LCS. All the samples in the batch are >CRDL and can act as their own blanks. Data accepted. Except as noted, the LCS, batch blank and sample results are within analytical requirements.

no method blank,

no ±'s in the samples

Radium-226 Analysis:

The LCS vial was added to the blank and the LCS only had a 54% recovery. The samples were reanalyzed. Data is accepted. Except as noted, the LCS, batch blank and sample results are within analytical 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. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Sherryl A. Adam
for 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 = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

Event 104

COC No._____

VERA000193

J6K060219
32994
Due 12.1.06

☒ 3264 Goni Road / Suite 153
Carson City, NV 89706
775-883-4118 / FAX 775-883-5108

☐ 4425 W. Spring Mountain Road / Suite 225
Las Vegas, NV 89102
702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 500
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Air Qlty

PROJECT NUMBER: 121243

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS., WEST SACRAMENTO, SACRAMENTO CA # G6J200155

1/6 OF THE EXPOSED FILTER WAS UTILIZED FOR THE METALS/SULFATE ANALYSES.

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT µSV/hr	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	P-0773	10/11/06	10:55	MS	1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th(228,230), Ra(226,228), Metals (Al,As,Cd,Cr,Co,Cu,Mn,Ni), Sulfate JH3NN			0.22		----	
02	P-0774		11:10		1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th(228,230), Ra(226,228), Metals (Al,As,Cd,Cr,Co,Cu,Mn,Ni), Sulfate JH3NR			0.29		----	
03	P-0775		11:35		1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th(228,230), Ra(226,228), Metals (Al,As,Cd,Cr,Co,Cu,Mn,Ni), Sulfate JH3NT			0.17		----	
04	P-0776		11:00		1	8x10 Filter	NONE	A	PM-10, Gross Alpha, Th(228,230), Ra(226,228), Metals (Al,As,Cd,Cr,Co,Cu,Mn,Ni), Sulfate JH3NV			0.32		----	
05	000545		11:40		1	8x10 Filter	NONE	A	TSP, Gross Alpha, Th(228,230), Ra(226,228), Metals (Al,As,Cd,Cr,Co,Cu,Mn,Ni), Sulfate JH3NW			0.33		----	
06	P0777		11:05		1	8x10	None	A	PM-10			0.22		----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY:	DATE	TIME	COOLER I.D.:			COMMENTS (see note on back):
[illegible]	10/11/06	12:00				
RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE / /	TIME :	RECEIVED IN GOOD CONDITION
[illegible]	10/11/06	09:40				
[illegible]	11/3/06	10:00	Steven Valmores	11/2/06	1600	OCT 20 2006
RECORD RETURNED BY:	DATE / /	TIME :				INI. [illegible]
COURIER: FEDEX			SHIPPING NUMBER: 798024085862			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

SEVERN TRENT STL

Sample Check-in List

Date/Time Received: 11/3/00 @ 9:30am

Client: Blonnet Caldwell SDG #: 32994 NA [ ] SAF #: _____ NA [X]

Work Order Number: JGK060219 Chain of Custody # Event 104

Shipping Container ID: N/A Air Bill # 6762 3701 5279

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: 5 5 52
7. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
8. Samples have:
   _____ tape
   _____ custody seals
   _____ hazard labels
   _____ appropriate samples labels
9. Samples are:
   _____ in good condition
   _____ broken
   _____ leaking
   _____ have air bubbles
   (Only for samples requiring head space)
   Air fitters
10. Sample pH taken? NA [X] pH<2 [ ] pH>2 [ ] adjusted pH [ ]
11. Sample Location, Sample Collector Listed? * Yes [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: [signature] Date: 11/3/00

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

Konstadina Vlahogiani

From: Adam, Sherryl [SAdam@stl-inc.com]
Sent: Wednesday, January 17, 2007 1:03 PM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Yerington Event 104
Attachments: gpc10_17-jan-2007-08432452.pdf; alp177_17-jan-2007-09574268.pdf; alp178_17-jan-2007-09574608.pdf; asc14_17-jan-2007-08453897.pdf; asc15_17-jan-2007-08455111.pdf; asc16_17-jan-2007-08455884.pdf; asc18_17-jan-2007-08460635.pdf; asc22_17-jan-2007-08461495.pdf; asc23_17-jan-2007-08462204.pdf; asc24_17-jan-2007-08462940.pdf; gpc3_17-jan-2007-08524276.pdf; gpc4_17-jan-2007-08550513.pdf

Dina,
Here you go.

Sherryl

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Tuesday, January 16, 2007 11:23 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: Yerington Event 104

Sherryl,

There are several calibration checks that are missing from the data package for Event 104.

For GROSS ALPHA: the background checks for detectors 10A, 10B, 10C, 10D, 10E (must include date 11/20/06)

For Ra-228: All calibration checks (efficiency & background) for detectors 3A, 3B, 3C, 3D, 4A, 4B (must include dates 11/21/06 and 11/22/06)

For Ra-226: All calibration checks for detectors asc14 15, 16, 18, 22, 23, 24 (must include date 12/2/06)

For isotopic thorium: The calibrations for ALP177 and 178 (analysis date 11/15/060)

Please let me know when I will have them.

Thanks,

Dina

Confidentiality Notice: The information contained in this message is intended only for the use of the addressee, and may be confidential and/or privileged. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

Konstadina Vlahogiani

From: Adam, Sherryl [SAdam@stl-inc.com]
Sent: Monday, January 29, 2007 2:27 PM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Yerington Event 104

Dina,

1. The check source for ASC24 was flagged investigate on 2-Dec-2006. We allow detectors to be used when the check is within the 3 sigma limit (investigate is the 2 sigma limit). Since these detectors are photomuliplier based they are sensitive to temperature changes. Larger than normal temperature changes were observed at the end of November and begining of December. As long as the QC check for the day is within the 3 sigma limit the detector can be used.
2. The background for all Alpha Scintillation counters is a check for light leaks in the counting chamber. The background for ASC24 is essential zero for the mean and standard deviation. The control chart for the background in this case is of little value so we allow the background count to vary by a few count. On 2-Dec-2006 there was one count.

ASC14

I hope this answers your questions. Thanks.

Sherryl

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Monday, January 29, 2007 11:17 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: RE: Yerington Event 104

Sherryl,

Any news on this? Could you please let me know when I can have an answer?

Dina

From: Konstadina Vlahogiani
Sent: Wednesday, January 17, 2007 1:45 PM
To: 'Adam, Sherryl'
Cc: Kocsis, Susie
Subject: RE: Yerington Event 104

Sherryl,

Thank you for your timely response.

I have a couple of comments for these calibrations. For Ra-226, the background check for asc14 is out-of-limits. Also for Ra-226, the count check for asc24 appears to be non-compliant. Please check the lower/upper bounds if they are set up correctly.

Thanks,

Dina

P.S. Everything else is OK.

From: Adam, Sherryl [mailto:SAdam@stl-inc.com]
Sent: Wednesday, January 17, 2007 1:03 PM
To: Konstadina Vlahogiani
Cc: Kocsis, Susie
Subject: RE: Yerington Event 104

Dina,
Here you go.

Sherryl

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Tuesday, January 16, 2007 11:23 AM
To: Adam, Sherryl
Cc: Kocsis, Susie
Subject: Yerington Event 104

Sherryl,

There are several calibration checks that are missing from the data package for Event 104.

For GROSS ALPHA: the background checks for detectors 10A, 10B, 10C, 10D, 10E (must include date 11/20/06)

For Ra-228: All calibration checks (efficiency & background) for detectors 3A, 3B, 3C, 3D, 4A, 4B (must include dates 11/21/06 and 11/22/06)

For Ra-226: All calibration checks for detectors asc14 15, 16, 18, 22, 23, 24 (must include date 12/2/06)

For isotopic thorium: The calibrations for ALP177 and 178 (analysis date 11/15/060)

Please let me know when I will have them.

Thanks,

Dina

Confidentiality Notice: The information contained in this message is intended only for the use of the addressee, and may be confidential and/or privileged. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.
Confidentiality Notice: The information contained in this message is intended only for the use of the addressee, and may be confidential and/or privileged. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

Sample Results Summary

STL Richland STLR

Ordered by Client Sample ID, Batch No.

Date: 05-Dec-06

Report No. : 33896

SDG No: 32994

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER2
000545	JH3NW1AA	TH-228	0.148 +- 0.271	ND	pCi/sample	97%	0.53	
		TH-230	0.236 +- 0.221	ND	pCi/sample	97%	0.283	
		TH-232	0.0473 +- 0.106	ND	pCi/sample	97%	0.283	
000545	JH3NW1AE	ALPHA	2.19 +- 2.57	ND	pCi/sample	100%	4.63	
000545	JH3NW1AD	RA-228	0.219 +- 0.847	ND	pCi/sample	76%	2.07	
000545	JH3NW2AC	RA-226	0.205 +- 0.225	ND	pCi/sample	97%	0.345	
P-0773	JH3NN1AA	TH-228	0.0641 +- 0.129	ND	pCi/sample	107%	0.256	
		TH-230	0.123 +- 0.149	ND	pCi/sample	107%	0.246	
		TH-232	0.0205 +- 0.0918	ND	pCi/sample	107%	0.246	
P-0773	JH3NN1AE	ALPHA	4.81 +- 3.65	ND	pCi/sample	100%	5.72	
P-0773	JH3NN1AD	RA-228	0.882 +- 0.864	ND	pCi/sample	83%	1.85	
P-0773	JH3NN2AC	RA-226	0.0967 +- 0.407	ND	pCi/sample	96%	0.758	
P-0774	JH3NR1AA	TH-228	-0.0191 +- 0.0854	ND	pCi/sample	96%	0.229	
		TH-230	0.0183 +- 0.0820	ND	pCi/sample	96%	0.22	
		TH-232	0.0367 +- 0.0822	ND	pCi/sample	96%	0.22	
P-0774	JH3NR1AE	ALPHA	1.86 +- 2.36	ND	pCi/sample	100%	4.34	
P-0774	JH3NR1AD	RA-228	0.842 +- 0.814	ND	pCi/sample	92%	1.74	
P-0774	JH3NR2AC	RA-226	0.620 +- 0.637	ND	pCi/sample	85%	1.02	
P-0775	JH3NT1AA	TH-228	0.00000 +- 0.0681	ND	pCi/sample	103%	0.16	
		TH-230	0.288 +- 0.199	=	pCi/sample	103%	0.153	
		TH-232	0.00000 +- 0.0653	ND	pCi/sample	103%	0.153	
P-0775	JH3NT1AE	ALPHA	6.82 +- 4.09	=	pCi/sample	100%	5.43	
P-0775	JH3NT1AD	RA-228	1.13 +- 0.883	ND	pCi/sample	88%	1.81	
P-0775	JH3NT2AC	RA-226	0.426 +- 0.375	ND	pCi/sample	93%	0.553	
P-0776	JH3NV1AA	TH-228	0.0780 +- 0.157	ND	pCi/sample	86%	0.312	
		TH-230	0.699 +- 0.397	=	pCi/sample	86%	0.3	
		TH-232	0.00000 +- 0.112	ND	pCi/sample	86%	0.3	
P-0776	JH3NV1AE	ALPHA	1.98 +- 2.62	ND	pCi/sample	100%	4.99	
P-0776	JH3NV1AD	RA-228	1.20 +- 0.877	ND	pCi/sample	88%	1.76	
P-0776	JH3NV2AC	RA-226	0.461 +- 0.392	ND	pCi/sample	93%	0.586	

STL Richland

rptSTLRchSaSum
V5.0.3 A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

= ERPIMS - Equal To, Analyte Detected

ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

Sample Results Summary

STL Richland STLR

Ordered by Client Sample ID, Batch No.

Date: 05-Dec-06

Report No. : 33896

SDG No: 32994

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER2

Number of Results: 30

STL Richland RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

rptSTLRchSaSum
V5.0.3 A2002

QC Results Summary
STL Richland STLR

Ordered by QC Type, Batch No.

Date: 05-Dec-06

Report No. : 33896

SDG No.: 32992

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	JH5N91AA	TH-228	0.00926 +- 0.0134	N	pCi/sample	108%			0.0222
		TH-230	0.00716 +- 0.0108	N	pCi/sample	108%			0.0215
		TH-232	0.00000 +- 0.00800	N	pCi/sample	108%			0.0215
BLANK QC	JH5PQ1AA	ALPHA	0.00184 +- 0.00342	N	pCi/sample	100%			0.00707
BLANK QC	JJ7A21AA	RA-226	-0.0239 +- 0.0869	N	pCi/sample	91%			0.179
LCS	JH5N91AC	TH-230	1.80 +- 0.357	=	pCi/sample	98%	98%	0.0	0.0228
LCS	JH5PQ1AC	ALPHA	0.182 +- 0.0426	=	pCi/sample	100%	99%	0.0	0.00951
LCS	JH5QD1AC	RA-228	4.46 +- 0.723	=	pCi/sample	90%	88%	-0.1	0.435
LCS	JJ7A21AC	RA-226	1.19 +- 0.518	=	pCi/sample	96%	88%	-0.1	0.116

Number of Results: 9

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

= ERPIMS - Equal To, Analyte Detected

ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 05-Dec-06

Lab Name:	STL Richland	SDG:	32994	Collection Date:	10/11/2006 11:40:00 AM
Lot-Sample No.:	J6K060219-5	Report No. :	33896	Received Date:	11/3/2006 10:00:00 AM
Client Sample ID:	000545	COC No. :		Matrix:	FILTER AIR

Yerington Air Quality - Event #104

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH3NW1AA			Report DB ID: 9JH3NW10								
TH-228	0.148	ND	0.27	0.27	0.53	pCi/sample	97%	*0.28*	11/15/06 09:18 a	1.0	0.082	ISOTH
						0.198	1.0	*(1.1)*		Sample	Sample	ALP120
TH-230	0.236	ND	0.22	0.22	0.283	pCi/sample	97%	*0.83*	11/15/06 09:18 a	1.0	0.082	ISOTH
						0.0777	1.0	*(2.1)*		Sample	Sample	ALP120
TH-232	0.0473	ND	0.11	0.11	0.283	pCi/sample	97%	*0.17*	11/15/06 09:18 a	1.0	0.082	ISOTH
						0.0777	1.0	*0.89*		Sample	Sample	ALP120
Batch: 6311393	Work Order: JH3NW1AE			Report DB ID: 9JH3NW10								
ALPHA	2.19	ND	2.5	2.6	4.63	pCi/sample	100%	*0.47*	11/20/06 05:38 p	1.0	0.02061	E900.0
						1.8	20.0	*(1.7)*		Sample	Sample	GPC10E
Batch: 6311396	Work Order: JH3NW1AD			Report DB ID: 9JH3NW10								
RA-228	0.219	ND	0.73	0.85	2.07	pCi/sample	76%	*0.11*	11/22/06 07:43 a	1.0	0.24652	E904.0
						0.89	3.1	*0.52*		Sample	Sample	GPC4A
Batch: 6325489	Work Order: JH3NW2AC			Report DB ID: 9JH3NW20								
RA-226	0.205	ND	0.22	0.22	0.345	pCi/sample	97%	*0.6*	12/2/06 01:27 p	1.0	0.2457	E903.1
						0.131	1.0	*(1.8)*		Sample	Sample	ASCQMC

Number of Results: 6

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 05-Dec-06

Lab Name:	STL Richland	SDG:	32994	Collection Date:	10/11/2006 10:55:00 AM
Lot-Sample No.:	J6K060219-1	Report No. :	33896	Received Date:	11/3/2006 10:00:00 AM
Client Sample ID:	P-0773	COC No. :		Matrix:	FILTER AIR

Yerington Air Quality - Event #104

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH3NN1AA			Report DB ID: 9JH3NN10								
TH-228	0.0641	ND	0.13	0.13	0.256	pCi/sample	107%	*0.25*	11/15/06 09:17 a	1.0	0.08411	ISOTH
						0.0703	1.0	*1.*		Sample	Sample	ALP177
TH-230	0.123	ND	0.15	0.15	0.246	pCi/sample	107%	*0.5*	11/15/06 09:17 a	1.0	0.08411	ISOTH
						0.0675	1.0	*(1.6)*		Sample	Sample	ALP177
TH-232	0.0205	ND	0.092	0.092	0.246	pCi/sample	107%	*0.08*	11/15/06 09:17 a	1.0	0.08411	ISOTH
						0.0675	1.0	*0.45*		Sample	Sample	ALP177
Batch: 6311393	Work Order: JH3NN1AE			Report DB ID: 9JH3NN10								
ALPHA	4.81	ND	3.5	3.7	5.72	pCi/sample	100%	*0.84*	11/20/06 05:38 p	1.0	0.02085	E900.0
						2.37	20.0	*(2.6)*		Sample	Sample	GPC10A
Batch: 6311396	Work Order: JH3NN1AD			Report DB ID: 9JH3NN10								
RA-228	0.882	ND	0.85	0.86	1.85	pCi/sample	83%	*0.48*	11/22/06 07:43 a	1.0	0.25005	E904.0
						0.787	3.1	*(2.)*		Sample	Sample	GPC3A
Batch: 6325489	Work Order: JH3NN2AC			Report DB ID: 9JH3NN20								
RA-226	0.0967	ND	0.41	0.41	0.758	pCi/sample	96%	*0.13*	12/2/06 01:27 p	1.0	0.25115	E903.1
						0.335	1.0	*0.48*		Sample	Sample	ASCEHA

Number of Results: 6

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 05-Dec-06

Lab Name:	STL Richland	SDG:	32994	**Collection Date:**	10/11/2006 11:10:00 AM
Lot-Sample No.:	J6K060219-2	Report No. :	33896	**Received Date:**	11/3/2006 10:00:00 AM
Client Sample ID:	P-0774	COC No. :		**Matrix:**	FILTER AIR

Yerington Air Quality - Event #104

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH3NR1AA			Report DB ID: 9JH3NR10								
TH-228	-0.0191	ND	0.085	0.085	0.229	pCi/sample	96%	*-0.08*	11/15/06 09:17 a	1.0	0.08183	ISOTH
						0.0628	1.0	*-0.45*		Sample	Sample	ALP178
TH-230	0.0183	ND	0.082	0.082	0.22	pCi/sample	96%	*0.08*	11/15/06 09:17 a	1.0	0.08183	ISOTH
						0.0603	1.0	*0.45*		Sample	Sample	ALP178
TH-232	0.0367	ND	0.082	0.082	0.22	pCi/sample	96%	*0.17*	11/15/06 09:17 a	1.0	0.08183	ISOTH
						0.0603	1.0	*0.89*		Sample	Sample	ALP178
Batch: 6311393	Work Order: JH3NR1AE			Report DB ID: 9JH3NR10								
ALPHA	1.86	ND	2.3	2.4	4.34	pCi/sample	100%	*0.43*	11/20/06 05:38 p	1.0	0.02051	E900.0
						1.68	20.0	*(1.6)*		Sample	Sample	GPC10B
Batch: 6311396	Work Order: JH3NR1AD			Report DB ID: 9JH3NR10								
RA-228	0.842	ND	0.79	0.81	1.74	pCi/sample	92%	*0.48*	11/22/06 07:43 a	1.0	0.24607	E904.0
						0.749	3.1	*(2.1)*		Sample	Sample	GPC3B
Batch: 6325489	Work Order: JH3NR2AC			Report DB ID: 9JH3NR20								
RA-226	0.620	ND	0.63	0.64	1.02	pCi/sample	85%	*0.61*	12/2/06 01:26 p	1.0	0.24541	E903.1
						0.434	1.0	*(1.9)*		Sample	Sample	ASCFSA

Number of Results: 6

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 05-Dec-06

Lab Name:	STL Richland	SDG:	32994	Collection Date:	10/11/2006 11:35:00 AM
Lot-Sample No.:	J6K060219-3	Report No. :	33896	Received Date:	11/3/2006 10:00:00 AM
Client Sample ID:	P-0775	COC No. :		Matrix:	FILTER AIR

Yerington Air Quality - Event #104

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH3NT1AA			Report DB ID: 9JH3NT10								
TH-228	0.00000	ND	0.0000	0.068	0.16	pCi/sample	103%	0.	11/15/06 09:18 a	1.0	0.0837	ISOTH
						0.0347	1.0	0.		Sample	Sample	ALP117
TH-230	0.288	=	0.19	0.20	0.153	pCi/sample	103%	(1.9)	11/15/06 09:18 a	1.0	0.0837	ISOTH
						0.0333	1.0	(2.9)		Sample	Sample	ALP117
TH-232	0.00000	ND	0.0000	0.065	0.153	pCi/sample	103%	0.	11/15/06 09:18 a	1.0	0.0837	ISOTH
						0.0333	1.0	0.		Sample	Sample	ALP117
Batch: 6311393	Work Order: JH3NT1AE			Report DB ID: 9JH3NT10								
ALPHA	6.82	=	3.9	4.1	5.43	pCi/sample	100%	(1.3)	11/20/06 05:38 p	1.0	0.02088	E900.0
						2.22	20.0	(3.3)		Sample	Sample	GPC10C
Batch: 6311396	Work Order: JH3NT1AD			Report DB ID: 9JH3NT10								
RA-228	1.13	ND	0.84	0.88	1.81	pCi/sample	88%	0.63	11/22/06 07:43 a	1.0	0.25	E904.0
						0.774	3.1	(2.6)		Sample	Sample	GPC3C
Batch: 6325489	Work Order: JH3NT2AC			Report DB ID: 9JH3NT20								
RA-226	0.426	ND	0.36	0.37	0.553	pCi/sample	93%	0.77	12/2/06 01:28 p	1.0	0.25003	E903.1
						0.226	1.0	(2.3)		Sample	Sample	ASCJSB

Number of Results: 6

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 05-Dec-06

Lab Name: STL Richland | **SDG:** 32994 | **Collection Date:** 10/11/2006 11:00:00 AM

Lot-Sample No.: J6K060219-4 | **Report No. :** 33896 | **Received Date:** 11/3/2006 10:00:00 AM

Client Sample ID: P-0776 | **COC No. :** | **Matrix:** FILTER AIR

Yerington Air Quality - Event #104

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH3NV1AA			Report DB ID: 9JH3NV10								
TH-228	0.0780	ND	0.16	0.16	0.312	pCi/sample	86%	*0.25*	11/15/06 09:18 a	1.0	0.08379	ISOTH
						0.0856	1.0	*1.*		Sample	Sample	ALP119
TH-230	0.699	=	0.38	0.40	0.3	pCi/sample	86%	*(2.3)*	11/15/06 09:18 a	1.0	0.08379	ISOTH
						0.0822	1.0	*(3.5)*		Sample	Sample	ALP119
TH-232	0.00000	ND	0.0000	0.11	0.3	pCi/sample	86%	*0.*	11/15/06 09:18 a	1.0	0.08379	ISOTH
						0.0822	1.0	*0.*		Sample	Sample	ALP119
Batch: 6311393	Work Order: JH3NV1AE			Report DB ID: 9JH3NV10								
ALPHA	1.98	ND	2.6	2.6	4.99	pCi/sample	100%	*0.4*	11/20/06 05:38 p	1.0	0.02094	E900.0
						2.03	20.0	*(1.5)*		Sample	Sample	GPC10D
Batch: 6311396	Work Order: JH3NV1AD			Report DB ID: 9JH3NV10								
RA-228	1.20	ND	0.82	0.88	1.76	pCi/sample	88%	*0.68*	11/22/06 07:43 a	1.0	0.24984	E904.0
						0.756	3.1	*(2.7)*		Sample	Sample	GPC3D
Batch: 6325489	Work Order: JH3NV2AC			Report DB ID: 9JH3NV20								
RA-226	0.461	ND	0.38	0.39	0.586	pCi/sample	93%	*0.79*	12/2/06 01:29 p	1.0	0.2527	E903.1
						0.249	1.0	*(2.4)*		Sample	Sample	ASCNMA

Number of Results: 6

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 05-Dec-06

Lab Name:	STL Richland	SDG:	32994	Collection Date:	10/11/2006 11:00:00 AM
Lot-Sample No.:	J6K060219-4	Report No. :	33896	Received Date:	11/3/2006 10:00:00 AM
Client Sample ID:	P-0776	COC No. :		Matrix:	FILTER AIR

Yerington Air Quality - Event #104

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector

STL Richland
rptSTLRchSample
V5.0.3 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 05-Dec-06

Lab Name: STL Richland | SDG: 32992

Lot-Sample No.: J6K070000-391 | Report No. : 33896 | **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH5N91AA			Report DB ID: JH5N91AB								
TH-228	0.00926	ND	0.013	0.013	0.0222	pCi/sample	108%	0.42	11/15/06 05:52 p	1.0	1.0	ISOTH
					0.00609	1.0		(1.4)		Sample	Sample	ALP119
TH-230	0.00716	ND	0.011	0.011	0.0215	pCi/sample	108%	0.33	11/15/06 05:52 p	1.0	1.0	ISOTH
					0.00589	1.0		(1.3)		Sample	Sample	ALP119
TH-232	0.00000	ND	0.0000	0.0080	0.0215	pCi/sample	108%	0.	11/15/06 05:52 p	1.0	1.0	ISOTH
					0.00589	1.0		0.		Sample	Sample	ALP119

Number of Results: 3

Comments:

5

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 05-Dec-06

Lab Name: STL Richland

SDG: 32992

Lot-Sample No.: J6K070000-393

Report No. : 33896

Matrix: FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6311393	Work Order:	JH5PQ1AA		Report DB ID:	JH5PQ1AB							
ALPHA	0.00184	ND	0.0034	0.0034	0.00707	pCi/sample	100%	0.26	11/20/06 08:21 p	1.0	12.58	E900.0
					0.00273	20.0		(1.1)		Sample	Sample	GPC10B

Number of Results: 1

Comments:

STL Richland

rptSTLRchBlank
V5.0.3 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 05-Dec-06

Lab Name: STL Richland | SDG: 32992

Lot-Sample No.: J6K210000-489 | Report No. : 33896 | **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 6325489	Work Order:	JJ7A21AA		Report DB ID:	JJ7A21AB							
RA-226	-0.0239	ND	0.086	0.087	0.179	pCi/sample	91%	-0.13	12/2/06 12:53 p	1.0	1.0	E903.1
					0.0781	1.0		-0.55		Sample	Sample	ASCGSB

Number of Results: 1

Comments:

STL Richland
rptSTLRchBlank
V5.0.3 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 05-Dec-06

Lab Name: STL Richland **SDG:** 32992

Lot-Sample No.: J6K070000-391 **Report No. :** 33896 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 6311391	Work Order: JH5N91AC			Report DB ID: JH5N91CS									
TH-230	1.80	=	0.17	0.36	0.0228	pCi/sample	98.23%	1.84	0.061	98%	11/15/06 05:52 p	1.0	ISOTH
							Rec Limits:	70.	130.	0.0		Sample	ALP120

Number of Results: 1

Comments:

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

FORM II

LCS RESULTS

Date: 05-Dec-06

Lab Name: STL Richland **SDG:** 32992

Lot-Sample No.: J6K070000-393 **Report No. :** 33896 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 6311393	Work Order: JH5PQ1AC			Report DB ID: JH5PQ1CS									
ALPHA	0.182	=	0.021	0.043	0.00951	pCi/sample	100.00%	0.184	0.0058	99%	11/20/06 08:21 p	12.54	E900.0
							Rec Limits:			0.0		Sample	GPC10A

Number of Results: 1

Comments:

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

FORM II

LCS RESULTS

Date: 05-Dec-06

Lab Name: STL Richland **SDG:** 32992

Lot-Sample No.: J6K070000-396 **Report No. :** 33896 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 6311396	Work Order: JH5QD1AC			Report DB ID: JH5QD1CS									
RA-228	4.46	=	0.52	0.72	0.435	pCi/sample	90.13%	5.04	0.02	88%	11/22/06 07:43 a	1.0	E904.0
							Rec Limits:	70.	130.	-0.1		Sample	GPC4B

Number of Results: 1

Comments:

20

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

FORM II

LCS RESULTS

Date: 05-Dec-06

Lab Name: STL Richland **SDG:** 32992

Lot-Sample No.: J6K210000-489 **Report No. :** 33896 **Matrix:** FILTER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 6325489	Work Order: JJ7A21AC			Report DB ID: JJ7A21CS									
RA-226	1.19	=	0.20	0.52	0.116	pCi/sample	95.90%	1.36	0.021	88%	12/2/06 12:56 p	1.0	E903.1
							Rec Limits:	70.	130.	-0.1		Sample	ASCPMA

Number of Results: 1

Comments:

21

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

THORIUM

SAMPLE AND QC DATA

SEVERN STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/24/2006 9:00:36 AM

Lot No., Due Date: J6K060215,J6K060216,J6K060219; 12/01/2006

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 6311391; RTHISO Thiso by ALP

SDG, Matrix: 32992,32993,32994; FILTER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?	✓		

3.0 QC & Samples

	Yes	No	N/A
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?			✓
3.5 Are the sample yields and MDAs within contract limits?		✓	

4.0 Raw Data

	Yes	No	N/A
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?	✓		
4.5 Were raw counts reviewed for anomalies?	✓		

5.0 Other

	Yes	No	N/A
5.1 Are all nonconformances included and noted?	✓		
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

See NCM. re batch 6324150

First Level Review Pam Anderson **Date** 11-24-06

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 631391

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

Comments on any "No" response: See NCM

Second Level Review: Sheryl A. Adam Date: 11-24-06

11/10/2006 5:01:37 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown & Caldwell

9N Thlso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311391 FILTER pCi/sampl PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: WoodT

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 JH3MK-1-AA J6K060216-3-SAMP 10/05/2006 10:30	0.833sa,g	501.08sa,g	50.02g,in	0.0832g	THTF0860 11/10/06,pd 10/04/04,r	500				
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
9 JH3ML-1-AA J6K060216-4-SAMP 10/05/2006 09:55	0.833sa,g	503.05sa,g	50.01g,in	0.0828g	THTF0861 11/10/06,pd 10/04/04,r					
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
10 JH3MM-1-AA J6K060216-5-SAMP 10/05/2006 10:35	0.833sa,g	500.03sa,g	50.00g,in	0.0833g	THTF0862 11/10/06,pd 10/04/04,r	11/10/06				
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
11 JH3NN-1-AA ✓ J6K060219-1-SAMP 10/11/2006 10:55	0.833sa,g	500.13sa,g	50.50g,in	0.0841g	THTF0863 11/10/06,pd 10/04/04,r					
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
12 JH3NR-1-AA ✓ J6K060219-2-SAMP 10/11/2006 11:10	0.833sa,g	509.38sa,g	50.04g,in	0.0818g	THTF0864 11/10/06,pd 10/04/04,r					
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
13 JH3NT-1-AA ✓ J6K060219-3-SAMP 10/11/2006 11:35	0.833sa,g	500.67sa,g	50.31g,in	0.0837g	THTF0865 11/10/06,pd 10/04/04,r					
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
14 JH3NV-1-AA ✓ J6K060219-4-SAMP 10/11/2006 11:00	0.833sa	500.36sa	50.33g,in	0.0838g	THTF0866 11/10/06,pd 10/04/04,r					
			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:

29

11/10/2006 5:01:38 PM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell , Brown & Caldwell

9N Thiso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #: _____

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311391 FILTER pCi/sampl PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: WoodT

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
15 JH3NW-1-AA J6K060219-5-SAMP 10/11/2006 11:40	0.833sa,g	508.75sa,g	50.08g,in	0.082g	THTF0867 11/10/06,pd 10/04/04,r	500				
		AmtRec: FILTER		#Containers: 1				Scr:	Alpha:	Beta:
16 JH5N9-1-AA-B J6K070000-391-BLK 10/18/2006 11:05			50.55g,in	50.55g	THTF0868 11/10/06,pd 10/04/04,r	11/10/06				
		AmtRec:		#Containers: 1				Scr:	Alpha:	Beta:
17 JH5N9-1-AC-C J6K070000-391-LCS 10/18/2006 11:05			50.09g,in	50.09g	THSO0093 08/17/06,pd 10/04/04,r					
		AmtRec:		#Containers: 1				Scr:	Alpha:	Beta:

Comments:

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JH3LV1AA-SAMP Constituent List:

Th-228	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/sam	LCL:	UCL:	RPD:
Th-232	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20

JH5N91AA-BLK:

Th-228	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/sam	LCL:	UCL:	RPD:
Th-232	RDL:1	pCi/sam	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20

JH5N91AC-LCS:

Th-230	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20	Th-234	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20

JH3LV1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JH5N91AA-BLK:

Sample Preparation/Analysis

9N Thlso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311391 pCi/sampl

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: WoodT

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

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

JH5N91AC-LCS:

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

Approved By _____ Date: _____

STL RICHLAND

11/22/2006 3:55:04 PM

ICOC Fraction Transfer/Status Report

ByDate: 11/22/2005, 11/27/2006, Batch: '6311391', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
6311391						
AC		**Sep2C**	**WoodT**	11/10/2006 9:01:18		
SC			wagarr	IsBatched	11/7/2006 3:29:16 PM	ICOC_RADCALC v4.8.24
SC			WoodT	InPrep	11/10/2006 9:01:18 AM	RICH-RC-5013 Revision 5
SC			HarveyK	Sep1C	11/14/2006 9:12:12 AM	RICH-RC-5087 REV0
SC			FABREM	Sep1C	11/14/2006 9:13:56 AM	RICH-RC-5087 REV0
SC			FABREM	Sep1C	11/14/2006 2:52:47 PM	RICH-RC-5039 REV 4
SC			FABREM	Sep2C	11/14/2006 2:53:33 PM	RICH-RC-5039 REV 4
AC			**HarveyK**	11/14/2006 9:12:12		
AC			**FABREM**	11/14/2006 9:13:56		
AC			**FABREM**	11/14/2006 2:52:47		
AC			**FABREM**	11/14/2006 2:53:33		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt:5

ICOCFractions v4.8.18

11/22/2006 3:55:04 PM

Rpt DB Transfer log (Batch Results)

SEVERN TRENT STL

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Sample Date / MDA	Units	Expected	Yield	Volumes
32992	**9JH3L110**			**J6K0602152**	P-0779	FILTER	11/3/2006 10:00:00	10/18/2006 11:30:00 AM				
ALPHA	BAS7		0	11/20/2006 12:06:48	**7.22E+00**	1.802E+00	1.944E+00	4.272E+00	PCI/SA	1.0	1.0E+0	2.084E-2
TH-228	9NS1		0	11/15/2006 12:20:29	**9.9555E-02**	5.786E-02	5.846E-02	1.589E-01	PCI/SA	1.014	1.0E+0	3.354E-2
TH-230	9NS1		0	11/15/2006 12:20:29	**1.6049E-01**	7.206E-02	7.33E-02	1.537E-01	PCI/SA	1.014	1.0E+0	3.354E-2
TH-232	9NS1		0	11/15/2006 12:20:29	**0.0E+00**	0.0E+00	3.273E-02	1.537E-01	PCI/SA	1.014	1.0E+0	3.354E-2
32992	**9JH3L310**			**J6K0602153**	P-0780	FILTER	11/3/2006 10:00:00	10/18/2006 11:55:00 AM				
ALPHA	BAS7		0	11/20/2006 12:06:48	**3.5037E+00**	1.58E+00	1.622E+00	5.463E+00	PCI/SA	1.0	1.0E+0	2.077E-2
TH-228	9NS1		0	11/15/2006 12:20:45	**1.3289E-01**	9.583E-02	9.661E-02	3.189E-01	PCI/SA	0.827	1.0E+0	3.416E-2
TH-230	9NS1		0	11/15/2006 12:20:45	**4.1132E-01**	1.477E-01	1.524E-01	3.084E-01	PCI/SA	0.827	1.0E+0	3.416E-2
TH-232	9NS1		0	11/15/2006 12:20:45	**5.1415E-02**	5.749E-02	5.768E-02	3.084E-01	PCI/SA	0.827	1.0E+0	3.416E-2
32992	**9JH3L510**			**J6K0602154**	P-0781	FILTER	11/3/2006 10:00:00	10/18/2006 11:10:00 AM				
ALPHA	BAS7		0	11/20/2006 12:06:48	**6.196E+00**	1.781E+00	1.885E+00	5.034E+00	PCI/SA	1.0	1.0E+0	2.077E-2
TH-228	9NS1		0	11/15/2006 12:20:52	**9.3038E-02**	1.186E-01	1.188E-01	5.006E-01	PCI/SA	0.989	1.0E+0	3.413E-2
TH-230	9NS1		0	11/15/2006 12:20:52	**1.7993E-01**	9.273E-02	9.406E-02	2.698E-01	PCI/SA	0.989	1.0E+0	3.413E-2
TH-232	9NS1		0	11/15/2006 12:20:52	**0.0E+00**	0.0E+00	5.029E-02	2.698E-01	PCI/SA	0.989	1.0E+0	3.413E-2
32992	**9JH3L610**			**J6K0602155**	000546	FILTER	11/3/2006 10:00:00	10/18/2006 12:00:00 PM				
ALPHA	BAS7		0	11/20/2006 12:06:48	**4.0391E+00**	1.508E+00	1.564E+00	4.578E+00	PCI/SA	1.0	1.0E+0	2.082E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**1.3445E-01**	9.211E-02	9.287E-02	3.229E-01	PCI/SA	1.043	1.0E+0	3.348E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**5.1997E-01**	1.402E-01	1.475E-01	2.228E-01	PCI/SA	1.043	1.0E+0	3.348E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**1.1142E-01**	6.696E-02	6.767E-02	2.228E-01	PCI/SA	1.043	1.0E+0	3.348E-2
32993	**9JH3MC10**			**J6K0602161**	P-0769	FILTER	11/3/2006 10:00:00	10/5/2006 9:50:00 AM				
ALPHA	BAS7		0	11/20/2006 2:50:55 PM	**2.6223E+00**	1.517E+00	1.54E+00	5.717E+00	PCI/SA	1.0	1.0E+0	2.086E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**1.3258E-01**	7.809E-02	7.889E-02	2.272E-01	PCI/SA	1.099	1.0E+0	3.329E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**2.7116E-01**	1.038E-01	1.063E-01	2.169E-01	PCI/SA	1.099	1.0E+0	3.329E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**7.2309E-02**	5.423E-02	5.457E-02	2.169E-01	PCI/SA	1.099	1.0E+0	3.329E-2
32993	**9JH3MJ10**			**J6K0602162**	P-0770	FILTER	11/3/2006 10:00:00	10/5/2006 10:10:00 AM				
ALPHA	BAS7		0	11/20/2006 2:50:55 PM	**1.8234E+00**	1.14E+00	1.155E+00	4.252E+00	PCI/SA	1.0	1.0E+0	2.092E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**1.553E-01**	9.147E-02	9.246E-02	2.661E-01	PCI/SA	1.024	1.0E+0	3.393E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**2.5409E-01**	1.059E-01	1.081E-01	2.54E-01	PCI/SA	1.024	1.0E+0	3.393E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**4.2349E-02**	4.735E-02	4.749E-02	2.54E-01	PCI/SA	1.024	1.0E+0	3.393E-2
32993	**9JH3MK10**			**J6K0602163**	P-0771	FILTER	11/3/2006 10:00:00	10/5/2006 10:30:00 AM				
ALPHA	BAS7		0	11/20/2006 2:50:55 PM	**6.1E+00**	1.859E+00	1.959E+00	5.451E+00	PCI/SA	1.0	1.0E+0	2.081E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**6.8692E-02**	6.869E-02	6.894E-02	2.747E-01	PCI/SA	1.114	1.0E+0	3.315E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**3.0596E-01**	1.177E-01	1.206E-01	2.622E-01	PCI/SA	1.114	1.0E+0	3.315E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**4.3708E-02**	4.887E-02	4.901E-02	2.622E-01	PCI/SA	1.114	1.0E+0	3.315E-2
32993	**9JH3ML10**			**J6K0602164**	P-0772	FILTER	11/3/2006 10:00:00	10/5/2006 9:55:00 AM				
ALPHA	BAS7		0	11/20/2006 2:50:55 PM	**4.0912E+00**	1.559E+00	1.612E+00	5.029E+00	PCI/SA	1.0	1.0E+0	2.076E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**7.773E-02**	7.271E-02	7.3E-02	2.86E-01	PCI/SA	1.099	1.0E+0	3.281E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**1.8548E-02**	6.151E-02	6.153E-02	3.118E-01	PCI/SA	1.099	1.0E+0	3.281E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**7.4186E-02**	5.564E-02	5.599E-02	2.225E-01	PCI/SA	1.099	1.0E+0	3.281E-2
32993	**9JH3MM10**			**J6K0602165**	000544	FILTER	11/3/2006 10:00:00	10/5/2006 10:35:00 AM				
ALPHA	BAS7		0	11/20/2006 2:50:55 PM	**3.2885E+00**	1.411E+00	1.449E+00	4.574E+00	PCI/SA	1.0	1.0E+0	2.087E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**1.8849E-01**	1.088E-01	1.1E-01	3.521E-01	PCI/SA	0.929	1.0E+0	3.33E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**3.9979E-01**	1.356E-01	1.399E-01	2.942E-01	PCI/SA	0.929	1.0E+0	3.33E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**7.9958E-02**	5.997E-02	6.036E-02	2.398E-01	PCI/SA	0.929	1.0E+0	3.33E-2
32994	**9JH3NN10**			**J6K0602191**	P-0773	FILTER	11/3/2006 10:00:00	10/11/2006 10:55:00 AM				
ALPHA	BAS7		0	11/20/2006 5:38:54 PM	**4.8082E+00**	1.76E+00	1.826E+00	5.718E+00	PCI/SA	1.0	1.0E+0	2.085E-2
TH-228	9NS1		0	11/15/2006 9:17:45	**6.4106E-02**	6.411E-02	6.434E-02	2.563E-01	PCI/SA	1.068	1.0E+0	3.411E-2
TH-230	9NS1		0	11/15/2006 9:17:45	**1.231E-01**	7.398E-02	7.473E-02	2.461E-01	PCI/SA	1.068	1.0E+0	3.411E-2
TH-232	9NS1		0	11/15/2006 9:17:45	**2.0517E-02**	4.588E-02	4.591E-02	2.461E-01	PCI/SA	1.068	1.0E+0	3.411E-2
32994	**9JH3NR10**			**J6K0602192**	P-0774	FILTER	11/3/2006 10:00:00	10/11/2006 11:10:00 AM				
ALPHA	BAS7		0	11/20/2006 5:38:54 PM	**1.8605E+00**	1.163E+00	1.178E+00	4.339E+00	PCI/SA	1.0	1.0E+0	2.051E-2

6311391, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 14,
**Results Inserted | ReTestInserted | Updated | NotInserted => 46 | 0 | 0 | 0.
**Diff RptDb | Qtims => *wo:JH5N91AA=> , mat:FILTER | Air *wo:JH5N91AA=> , mat:FILTER | Air *wo:JH5N91AA=> , mat:FILTER | Air.

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Sample Date / Mda	Units	Expected	Yield	Volumes	
TH-228	9NS1	0		11/15/2006 9:17:45	**-1.909E-02**	4.269E-02	4.272E-02	2.29E-01	PCI/SA		0.959	1.0E+0	3.183E-2
TH-230	9NS1	0		11/15/2006 9:17:45	**1.833E-02**	4.099E-02	4.102E-02	2.199E-01	PCI/SA		0.959	1.0E+0	3.183E-2
TH-232	9NS1	0		11/15/2006 9:17:45	**3.6659E-02**	4.099E-02	4.11E-02	2.199E-01	PCI/SA		0.959	1.0E+0	3.183E-2
32994	**9JH3NT10**			**J6K0602193**	P-0775	FILTER	11/3/2006 10:00:00	10/11/2006 11:35:00 AM					
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**6.8219E+00**	1.926E+00	2.045E+00	5.434E+00	PCI/SA		1.0	1.0E+0	2.088E-2
TH-228	9NS1	0		11/15/2006 9:18:10	**0.0E+00**	0.0E+00	3.403E-02	1.598E-01	PCI/SA		1.035	1.0E+0	3.37E-2
TH-230	9NS1	0		11/15/2006 9:18:10	**2.8835E-01**	9.633E-02	9.932E-02	1.535E-01	PCI/SA		1.035	1.0E+0	3.37E-2
TH-232	9NS1	0		11/15/2006 9:18:10	**0.0E+00**	0.0E+00	3.267E-02	1.535E-01	PCI/SA		1.035	1.0E+0	3.37E-2
32994	**9JH3NV10**			**J6K0602194**	P-0776	FILTER	11/3/2006 10:00:00	10/11/2006 11:00:00 AM					
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**1.9771E+00**	1.293E+00	1.308E+00	4.988E+00	PCI/SA		1.0	1.0E+0	2.094E-2
TH-228	9NS1	0		11/15/2006 9:18:18	**7.805E-02**	7.805E-02	7.835E-02	3.121E-01	PCI/SA		0.855	1.0E+0	3.379E-2
TH-230	9NS1	0		11/15/2006 9:18:18	**6.9942E-01**	1.886E-01	1.985E-01	2.996E-01	PCI/SA		0.855	1.0E+0	3.379E-2
TH-232	9NS1	0		11/15/2006 9:18:18	**0.0E+00**	0.0E+00	5.585E-02	2.996E-01	PCI/SA		0.855	1.0E+0	3.379E-2
32994	**9JH3NW10**			**J6K0602195**	000545	FILTER	11/3/2006 10:00:00	10/11/2006 11:40:00 AM					
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**2.1928E+00**	1.269E+00	1.287E+00	4.627E+00	PCI/SA		1.0	1.0E+0	2.061E-2
TH-228	9NS1	0		11/15/2006 9:18:20	**1.4771E-01**	1.348E-01	1.354E-01	5.298E-01	PCI/SA		0.966	1.0E+0	3.2E-2
TH-230	9NS1	0		11/15/2006 9:18:20	**2.3632E-01**	1.083E-01	1.103E-01	2.835E-01	PCI/SA		0.966	1.0E+0	3.2E-2
TH-232	9NS1	0		11/15/2006 9:18:20	**4.7264E-02**	5.284E-02	5.3E-02	2.835E-01	PCI/SA		0.966	1.0E+0	3.2E-2
32992	**JH5N91AB**			**J6K070000391**	INTRA-LAB BLANK	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM					
TH-228	9NS1	0	B	11/15/2006 5:52:53 PM	**9.2585E-03**	6.677E-03	6.725E-03	2.222E-02	PCI/SA		1.085	1.0E+0	1.0E+0
TH-230	9NS1	0	B	11/15/2006 5:52:53 PM	**7.1591E-03**	5.369E-03	5.405E-03	2.147E-02	PCI/SA		1.085	1.0E+0	1.0E+0
TH-232	9NS1	0	B	11/15/2006 5:52:53 PM	**0.0E+00**	0.0E+00	4.002E-03	2.147E-02	PCI/SA		1.085	1.0E+0	1.0E+0
32992	**JH5N91CS**			**J6K070000391**	INTRA-LAB CHECK	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM					
TH-230	9NS1	0	S	11/15/2006 5:52:56 PM	**1.796E+00**	8.278E-02	1.787E-01	2.285E-02	PCI/SA	1.8355E+00	0.982	1.0E+0	1.0E+0

6311391, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 14,
**Results Inserted | ReTestInserted | Updated | NotInserted => 46 | 0 | 0 | 0.
**Diff RptDb | Qtims => *wo:JH5N91AA=> , mat:FILTER | Air *wo:JH5N91AA=> , mat:FILTER | Air *wo:JH5N91AA=> , mat:FILTER | Air.

Batch Nbr: 6311391

Alpha Spec, ThIso by ALP , Results

11/20/2006 7:59:25 AM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
ThIso by ALP				Richland Standard AlpIso Wo Blk Subt.										
Calc	S1	FILTER	JH3LV1AA	TH-228	-3.79E-01	(8.52E-01)	U4	PCI/SA	R	1.25E+00	4.55E+00		6%	
Calc	S1	FILTER	JH3LV1AA	TH-230	3.67E-01	(8.24E-01)	U4	PCI/SA	R	1.21E+00	4.40E+00		6%	
Calc	S1	FILTER	JH3LV1AA	TH-232	0.00E+00	(8.20E-01)	U4	PCI/SA	R	1.21E+00	4.40E+00		6%	
Calc	S1	FILTER	JH3L11AA	TH-228	9.96E-02	(5.85E-02)		PCI/SA	R	3.45E-02	1.59E-01		101%	
Calc	S1	FILTER	JH3L11AA	TH-230	1.60E-01	(7.33E-02)		PCI/SA	R	3.34E-02	1.54E-01		101%	
Calc	S1	FILTER	JH3L11AA	TH-232	0.00E+00	(3.27E-02)	U4	PCI/SA	R	3.34E-02	1.54E-01		101%	
Calc	S1	FILTER	JH3L31AA	TH-228	1.33E-01	(9.66E-02)	U4	PCI/SA	R	8.75E-02	3.19E-01		83%	
Calc	S1	FILTER	JH3L31AA	TH-230	4.11E-01	(1.52E-01)		PCI/SA	R	8.46E-02	3.08E-01		83%	
Calc	S1	FILTER	JH3L31AA	TH-232	5.14E-02	(5.77E-02)	U4	PCI/SA	R	8.46E-02	3.08E-01		83%	
Calc	S1	FILTER	JH3L51AA	TH-228	9.30E-02	(1.19E-01)	U4	PCI/SA	R	1.87E-01	5.01E-01		99%	
Calc	S1	FILTER	JH3L51AA	TH-230	1.80E-01	(9.41E-02)		PCI/SA	R	7.40E-02	2.70E-01		99%	
Calc	S1	FILTER	JH3L51AA	TH-232	0.00E+00	(5.03E-02)	U4	PCI/SA	R	7.40E-02	2.70E-01		99%	
Calc	S1	FILTER	JH3L61AA	TH-228	1.34E-01	(9.29E-02)	U4	PCI/SA	R	1.09E-01	3.23E-01		104%	
Calc	S1	FILTER	JH3L61AA	TH-230	5.20E-01	(1.47E-01)		PCI/SA	R	6.11E-02	2.23E-01		104%	
Calc	S1	FILTER	JH3L61AA	TH-232	1.11E-01	(6.77E-02)		PCI/SA	R	6.11E-02	2.23E-01		104%	
Calc	S1	FILTER	JH3MC1AA	TH-228	1.33E-01	(7.89E-02)		PCI/SA	R	6.23E-02	2.27E-01		110%	
Calc	S1	FILTER	JH3MC1AA	TH-230	2.71E-01	(1.06E-01)		PCI/SA	R	5.95E-02	2.17E-01		110%	
Calc	S1	FILTER	JH3MC1AA	TH-232	7.23E-02	(5.46E-02)	U4	PCI/SA	R	5.95E-02	2.17E-01		110%	
Calc	S1	FILTER	JH3MJ1AA	TH-228	1.55E-01	(9.25E-02)		PCI/SA	R	7.30E-02	2.66E-01		102%	
Calc	S1	FILTER	JH3MJ1AA	TH-230	2.54E-01	(1.08E-01)		PCI/SA	R	6.97E-02	2.54E-01		102%	
Calc	S1	FILTER	JH3MJ1AA	TH-232	4.23E-02	(4.75E-02)	U4	PCI/SA	R	6.97E-02	2.54E-01		102%	
Calc	S1	FILTER	JH3MK1AA	TH-228	6.87E-02	(6.89E-02)	U4	PCI/SA	R	7.53E-02	2.75E-01		111%	
Calc	S1	FILTER	JH3MK1AA	TH-230	3.06E-01	(1.21E-01)		PCI/SA	R	7.19E-02	2.62E-01		111%	
Calc	S1	FILTER	JH3MK1AA	TH-232	4.37E-02	(4.90E-02)	U4	PCI/SA	R	7.19E-02	2.62E-01		111%	
Calc	S1	FILTER	JH3ML1AA	TH-228	7.77E-02	(7.30E-02)	U4	PCI/SA	R	9.04E-02	2.86E-01		110%	
Calc	S1	FILTER	JH3ML1AA	TH-230	1.85E-02	(6.15E-02)	U4	PCI/SA	R	1.06E-01	3.12E-01		110%	
Calc	S1	FILTER	JH3ML1AA	TH-232	7.42E-02	(5.60E-02)	U4	PCI/SA	R	6.10E-02	2.22E-01		110%	
Calc	S1	FILTER	JH3MM1AA	TH-228	1.88E-01	(1.10E-01)		PCI/SA	R	1.19E-01	3.52E-01		93%	
Calc	S1	FILTER	JH3MM1AA	TH-230	4.00E-01	(1.40E-01)		PCI/SA	R	9.30E-02	2.94E-01		93%	
Calc	S1	FILTER	JH3MM1AA	TH-232	8.00E-02	(6.04E-02)	U4	PCI/SA	R	6.58E-02	2.40E-01		93%	
Calc	S1	FILTER	JH3NN1AA	TH-228	6.41E-02	(6.43E-02)	U4	PCI/SA	R	7.03E-02	2.56E-01		107%	
Calc	S1	FILTER	JH3NN1AA	TH-230	1.23E-01	(7.47E-02)		PCI/SA	R	6.75E-02	2.46E-01		107%	
Calc	S1	FILTER	JH3NN1AA	TH-232	2.05E-02	(4.59E-02)	U4	PCI/SA	R	6.75E-02	2.46E-01		107%	
Calc	S1	FILTER	JH3NR1AA	TH-228	-1.91E-02	(4.27E-02)	U4	PCI/SA	R	6.28E-02	2.29E-01		96%	
Calc	S1	FILTER	JH3NR1AA	TH-230	1.83E-02	(4.10E-02)	U4	PCI/SA	R	6.03E-02	2.20E-01		96%	
Calc	S1	FILTER	JH3NR1AA	TH-232	3.67E-02	(4.11E-02)	U4	PCI/SA	R	6.03E-02	2.20E-01		96%	
Calc	S1	FILTER	JH3NT1AA	TH-228	0.00E+00	(3.40E-02)	U4	PCI/SA	R	3.47E-02	1.60E-01		103%	

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:51
RADCALC v4.8.26
STL Richland

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	S1	FILTER	JH3NT1AA	TH-230	2.88E-01	(9.93E-02)		PCI/SA	R	3.33E-02	1.53E-01		103%	
Calc	S1	FILTER	JH3NT1AA	TH-232	0.00E+00	(3.27E-02)	U4	PCI/SA	R	3.33E-02	1.53E-01		103%	
Calc	S1	FILTER	JH3NV1AA	TH-228	7.80E-02	(7.84E-02)	U4	PCI/SA	R	8.56E-02	3.12E-01		86%	
Calc	S1	FILTER	JH3NV1AA	TH-230	6.99E-01	(1.99E-01)		PCI/SA	R	8.22E-02	3.00E-01		86%	
Calc	S1	FILTER	JH3NV1AA	TH-232	0.00E+00	(5.59E-02)	U4	PCI/SA	R	8.22E-02	3.00E-01		86%	
Calc	S1	FILTER	JH3NW1AA	TH-228	1.48E-01	(1.35E-01)	U4	PCI/SA	R	1.98E-01	5.30E-01		97%	
Calc	S1	FILTER	JH3NW1AA	TH-230	2.36E-01	(1.10E-01)		PCI/SA	R	7.77E-02	2.83E-01		97%	
Calc	S1	FILTER	JH3NW1AA	TH-232	4.73E-02	(5.30E-02)	U4	PCI/SA	R	7.77E-02	2.83E-01		97%	
Calc	S1	FILTER	JH5N91AA	TH-228	9.26E-03	(6.72E-03)	U4	PCI/SA	R	6.09E-03	2.22E-02	B	108%	
Calc	S1	FILTER	JH5N91AA	TH-230	7.16E-03	(5.41E-03)	U4	PCI/SA	R	5.89E-03	2.15E-02	B	108%	
Calc	S1	FILTER	JH5N91AA	TH-232	0.00E+00	(4.00E-03)	U4	PCI/SA	R	5.89E-03	2.15E-02	B	108%	
Calc	S1	FILTER	JH5N91AC	TH-230	1.80E+00	(1.79E-01)		PCI/SA	R	6.27E-03	2.28E-02	S	98%	98%

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC - Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:66
RADCALC v4.8.26
STL Richland

Batch Nbr: 6311391

Alpha Spec, ThIso by ALP , Calculated Results

11/20/2006 7:59:26 AM

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
11	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JH3NN1AA	PCI/SA		10/11/06 10:55	11/15/06 09:17			1	1.00 SA	
536403,P-0773					J6K060219-1 v4 8 26		FILTER					THTF0863 Alq		0.084111 SA	

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	11/15/06 05:08	TH-228	2	1	ALP177	ED	N	N	2.6130E-01		N	107%	N		1.0000E+00	4.5045E-01	1.0352E+00	
			499.4666666	998.95			Y		(7.839E-03)			7%			(0.000E+00)	11.889033		
1	11/15/06 05:08	TH-229	565	0	ALP177	ED	Y	N	2.6130E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(7.839E-03)						(0.000E+00)	11.889033		
2	11/15/06 05:08	TH-230	3	0	ALP177	ED	N	N	2.6130E-01		N	107%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(7.839E-03)			7%			(0.000E+00)	11.889033		
3	11/15/06 05:08	TH-232	1	1	ALP177	ED	N	N	2.6130E-01		N	107%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(7.839E-03)			7%			(0.000E+00)	11.889033		

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
	11/16/06	TH-228	R	**0.064106**	U4	3.00322E-03	0.011563	0.011563	1.00 SA	107%		0.256337		
				(0.064341)		(3.0032E-03)	(0.01159)	(0.01159)	(0.014142)			0.070302		
	11/16/06	TH-229	R	**23.184275**		1.13121E+00	4.329128	4.329128	1.00 SA	107%				
				(1.69906)		(4.7601E-02)	(0.223724)	(0.223724)	(0.014142)					
	11/16/06	TH-230	R	**0.123102**		6.00641E-03	0.022987	0.022987	1.00 SA	107%		0.246123		
				(0.074725)		(3.6094E-03)	(0.013902)	(0.013902)	(0.014142)			0.067501		
	11/16/06	TH-232	R	**0.020517**	U4	1.00108E-03	0.003831	0.003831	1.00 SA	107%		0.246123		
				(0.045911)		(2.2384E-03)	(0.008571)	(0.008571)	(0.014142)			0.067501		

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
12	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JH3NR1AA	PCI/SA		10/11/06 11:10	11/15/06 09:17			1	1.00 SA	
536403,P-0774					J6K060219-2 v4.8.26		FILTER					THTF0864 Alq		0.081831 SA	

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	11/15/06 05:08	TH-228	0	1	ALP178	ED	N	N	3.1338E-01		N	96%	N		1.0000E+00	4.5045E-01	1.0352E+00	
			499.4666666	998.95			Y		(9.401E-03)			6%			(0.000E+00)	12.220236		
1	11/15/06 05:08	TH-229	609	1	ALP178	ED	Y	N	3.1338E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(9.401E-03)						(0.000E+00)	12.220236		
2	11/15/06 05:08	TH-230	1	1	ALP178	ED	N	N	3.1338E-01		N	96%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(9.401E-03)			6%			(0.000E+00)	12.220236		
3	11/15/06 05:08	TH-232	1	0	ALP178	ED	N	N	3.1338E-01		N	96%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(9.401E-03)			6%			(0.000E+00)	12.220236		

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

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

RecCnt:12

RADCALC v4.8.26

STL Richland

Batch Nbr: 6311391 Alpha Spec, ThIso by ALP , Calculated Results 11/20/2006 7:59:26 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	BlkLcC/MDC	StdDvMdC/LcC
	11/16/06	TH-228	R	**-0.01909**	U4	-1.00105E-03	-0.00335	-0.00335	1.00 SA	96%		0.229002		
				(0.042717)		(2.2384E-03)	(0.007494)	(0.007494)	(0.014142)			0.062805		
	11/16/06	TH-229	R	**21.399669**		1.21830E+00	3.887594	3.887594	1.00 SA	96%				
				(1.549876)		(4.9419E-02)	(0.196137)	(0.196137)	(0.014142)					
	11/16/06	TH-230	R	**0.01833**	U4	1.00108E-03	0.00333	0.00333	1.00 SA	96%		0.219881		
				(0.041015)		(2.2384E-03)	(0.007449)	(0.007449)	(0.014142)			0.060303		
	11/16/06	TH-232	R	**0.036659**	U4	2.00214E-03	0.00666	0.00666	1.00 SA	96%		0.219881		
				(0.041104)		(2.2384E-03)	(0.007459)	(0.007459)	(0.014142)			0.060303		

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
13	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JH3NT1AA**	**PCI/SA**		10/11/06 11:35	11/15/06 09:18			1	1.00 SA	
536403,P-0775					,J6K060219-3 v4 8.26		FILTER					THTF0865 Alq		0.083704 SA	

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	11/15/06 05:08	TH-228	0	0	ALP117	ED	N	N	3.3591E-01		N	103%	N		1.0000E+00	4.5045E-01	1.0352E+00	
			500.0333333	2500.1			Y		(1.008E-02)			6%			(0.000E+00)	11.946818		
1	11/15/06 05:08	TH-229	697	4	ALP117	ED	Y	N	3.3591E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	2500.1			Y		(1.008E-02)						(0.000E+00)	11.946818		
2	11/15/06 05:08	TH-230	9	0	ALP117	ED	N	N	3.3591E-01		N	103%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	2500.1			Y		(1.008E-02)			6%			(0.000E+00)	11.946818		
3	11/15/06 05:08	TH-232	0	0	ALP117	ED	N	N	3.3591E-01		N	103%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	2500.1			Y		(1.008E-02)			6%			(0.000E+00)	11.946818		

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
	11/16/06	TH-228	R	**0.00E00**	U4	0.00000E+00	0.00E00	0.00E00	1.00 SA	103%		0.159816		
				(0.034028)		(2.0395E-03)	(0.006108)	(0.006108)	(0.014142)			0.034716		
	11/16/06	TH-229	R	**22.305539**		1.39231E+00	4.144898	4.144898	1.00 SA	103%				
				(1.583277)		(5.2804E-02)	(0.200433)	(0.200433)	(0.014142)					
	11/16/06	TH-230	R	**0.288351**		1.79988E-02	0.053582	0.053582	1.00 SA	103%		0.153453		
				(0.099317)		(6.0129E-03)	(0.018244)	(0.018244)	(0.014142)			0.033333		
	11/16/06	TH-232	R	**0.00E00**	U4	0.00000E+00	0.00E00	0.00E00	1.00 SA	103%		0.153453		
				(0.032674)		(2.0395E-03)	(0.006072)	(0.006072)	(0.014142)			0.033333		

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
14	Calc	S1	FILTER	*STLE	AlpIsoWoBS	**JH3NV1AA**	**PCI/SA**		10/11/06 11:00	11/15/06 09:18			1	1.00 SA	
536403,P-0776					,J6K060219-4 v4 8.26		FILTER					THTF0866 Alq		0.083789 SA	

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	11/15/06 05:08	TH-228	2	1	ALP119	ED	N	N	2.5157E-01		N	86%	N		1.0000E+00	4.5045E-01	1.0352E+00	
			500.05	1000.2166			Y		(7.547E-03)			6%			(0.000E+00)	11.934677		

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

Batch Nbr: 6311391 Alpha Spec, Thlso by ALP , Calculated Results 11/20/2006 7:59:27 AM

1	11/15/06 05:08	TH-229	437	0	ALP119	ED	Y	N	2.5157E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
			500.05	1000.2166			Y		(7.547E-03)				(0.000E+00)	11.934677	
2	11/15/06 05:08	TH-230	14	0	ALP119	ED	N	N	2.5157E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
			500.05	1000.2166			Y		(7.547E-03)		6%		(0.000E+00)	11.934677	
3	11/15/06 05:08	TH-232	0	0	ALP119	ED	N	N	2.5157E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
			500.05	1000.2166			Y		(7.547E-03)		6%		(0.000E+00)	11.934677	

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
	11/16/06	TH-228	R	**0.07805**	U4	2.99982E-03	0.014024	0.014024	1.00 SA	86%		0.312075		
				(0.078353)		(2.9997E-03)	(0.01406)	(0.01406)	(0.014142)			0.085586		
	11/16/06	TH-229	R	**18.675076**		8.73913E-01	3.473803	3.473803	1.00 SA	86%				
				(1.4332)		(4.1817E-02)	(0.19619)	(0.19619)	(0.014142)					
	11/16/06	TH-230	R	**0.699415**		2.79972E-02	0.1301	0.1301	1.00 SA	86%		0.299642		
				(0.198543)		(7.5491E-03)	(0.036308)	(0.036308)	(0.014142)			0.082177		
	11/16/06	TH-232	R	**0.00E00**	U4	0.00000E+00	0.00E00	0.00E00	1.00 SA	86%		0.299642		
				(0.055854)		(2.2358E-03)	(0.01039)	(0.01039)	(0.014142)			0.082177		

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
15	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JH3NW1AA	PCI/SA		10/11/06 11:40	11/15/06 09:18			1	1.00 SA	
536403.000545					J6K060219-5 v4.8.26		FILTER					THTF0867 Alq		0.081998 Sa	

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	11/15/06 05:08	TH-228	6	6	ALP120	ED	N	N	2.4073E-01		N	97%	N		1.0000E+00	4.5045E-01	1.0352E+00	
			500.0333333	1000.3			Y		(7.222E-03)			6%			(0.000E+00)	12.195373		
1	11/15/06 05:08	TH-229	472	2	ALP120	ED	Y	N	2.4073E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	1000.3			Y		(7.222E-03)						(0.000E+00)	12.195373		
2	11/15/06 05:08	TH-230	5	0	ALP120	ED	N	N	2.4073E-01		N	97%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	1000.3			Y		(7.222E-03)			6%			(0.000E+00)	12.195373		
3	11/15/06 05:08	TH-232	1	0	ALP120	ED	N	N	2.4073E-01		N	97%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0333333	1000.3			Y		(7.222E-03)			6%			(0.000E+00)	12.195373		

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
	11/16/06	TH-228	R	**0.147707**	U4	6.00100E-03	0.025973	0.025973	1.00 SA	97%		0.529805		
				(0.135423)		(5.4766E-03)	(0.023775)	(0.023775)	(0.014142)			0.198321		
	11/16/06	TH-229	R	**21.494649**		9.41938E-01	3.912809	3.912809	1.00 SA	97%				
				(1.627061)		(4.3471E-02)	(0.215379)	(0.215379)	(0.014142)					
	11/16/06	TH-230	R	**0.236322**		9.99933E-03	0.043019	0.043019	1.00 SA	97%		0.283476		
				(0.110268)		(4.5822E-03)	(0.019948)	(0.019948)	(0.014142)			0.077741		
	11/16/06	TH-232	R	**0.047264**	U4	1.99987E-03	0.008604	0.008604	1.00 SA	97%		0.283476		
				(0.053004)		(2.2358E-03)	(0.009638)	(0.009638)	(0.014142)			0.077741		

() - (1s Uncertainities), Q Qualifier, U Result is Less Than Lc – 1.645 * TPU

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 - m/dd/yy hh mm, 24hr Time

RecCnt:16 RADCALC v4.8.26 STL Richland

Batch Nbr: 6311391

Alpha Spec, Thiso by ALP , Calculated Results

11/20/2006 7:59:27 AM

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
16	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JH5N91AA	PCI/SA	B	10/18/06 11:05	11/15/06 17:52			1	1.00 SA	
0.INTRA-LAB BLANK					J6K070000-391		FILTER					THTF0868 Alq		1.00 SA	

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
5	11/15/06 13:42	TH-228	3	1	ALP119	ED	N	N	2.5157E-01		N	108%	N		1.0000E+00	4.5045E-01	1.0284E+00	
			500.2166666	1000.2166			Y		(7.547E-03)			7%			(0.000E+00)	1.00		
6	11/15/06 13:42	TH-229	554	0	ALP119	ED	Y	N	2.5157E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.2166666	1000.2166			Y		(7.547E-03)						(0.000E+00)	1.00		
7	11/15/06 13:42	TH-230	2	0	ALP119	ED	N	N	2.5157E-01		N	108%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.2166666	1000.2166			Y		(7.547E-03)			7%			(0.000E+00)	1.00		
8	11/15/06 13:42	TH-232	0	0	ALP119	ED	N	N	2.5157E-01		N	108%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.2166666	1000.2166			Y		(7.547E-03)			7%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	11/20/06	TH-228	R	**0.009259**	U4	4.99762E-03	0.019985	0.019985	1.00 SA	108%		0.022215		
				(0.006725)		(3.6040E-03)	(0.014477)	(0.014477)	(0.017321)			0.006093		
	11/20/06	TH-229	R	**1.983058**		1.10752E+00	4.402392	4.402392	1.00 SA	108%				
				(0.147146)		(4.7065E-02)	(0.229004)	(0.229004)	(0.017321)					
	11/20/06	TH-230	R	**0.007159**	U4	3.99827E-03	0.015893	0.015893	1.00 SA	108%		0.021471		
				(0.005405)		(2.9988E-03)	(0.01197)	(0.01197)	(0.017321)			0.005889		
	11/20/06	TH-232	R	**0.00E00**	U4	0.00000E+00	0.00E00	0.00E00	1.00 SA	108%		0.021471		
				(0.004002)		(2.2352E-03)	(0.008885)	(0.008885)	(0.017321)			0.005889		

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
17	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JH5N91AC	PCI/SA	S	10/18/06 11:05	11/15/06 17:52		THSO0093	1	1.00 SA	
0.INTRA-LAB CHECK					J6K070000-391		FILTER					THSO0093 Alq		1.00 SA	

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
1	11/15/06 13:42	TH-229	481	1	ALP120	ED	Y	N	2.4073E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0833333	1000.3			Y		(7.222E-03)						(0.000E+00)	1.00		
2	11/15/06 13:42	TH-230	472	1	ALP120	ED	N	N	2.4073E-01		N	98%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			500.0833333	1000.3			Y		(7.222E-03)			6%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	11/16/06	TH-229	R	**1.797894**		9.60840E-01	3.991329	3.991329	1.00 SA	98%				
				(0.136739)		(4.3868E-02)	(0.218045)	(0.218045)	(0.017321)					
	11/16/06	TH-230	R	**1.795955**		9.42843E-01	3.987024	3.987024	1.00 SA	98%	98%	0.022846		
				(0.178674)		(4.3455E-02)	(0.335897)	(0.335897)	(0.017321)			0.006265		

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

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

RecCnt:17

RADCALC v4.8.26

STL Richland

SEVERN TRENT STL

THORIUM ISOTOPIC COUNTING REQUEST

BJV

C.R. Technician: [illegible]
Date Counted: 11/15
C.R. Analyst: [illegible]
Date Analyzed: 11/15/06

Counting Time
Sample: 500 Minutes

Background: See Alpha Analysis Report
PDRC 10/18/06

SOP's
Operating: RICHRD008
Review: RICHRD0016
631391

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS			Det #	Comment
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
JH3L61AA		10		0	See Alpha Analysis Report for ROI Information			171	
JH3MC1AA		10		0	See Alpha Analysis Report for ROI Information			172	
JH3MJ1AA		10		0	See Alpha Analysis Report for ROI Information			173	
JH3MK1AA		10		0	See Alpha Analysis Report for ROI Information			174	
JH3ML1AA		10		0	See Alpha Analysis Report for ROI Information			175	
JH3MM1AA		10		0	See Alpha Analysis Report for ROI Information			176	
JH3NN1AA ✓		10		0	See Alpha Analysis Report for ROI Information			177	
JH3NR1AA ✓		10		0	See Alpha Analysis Report for ROI Information			178	
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: [illegible]

Date: 11/15/06

SEVERN TRENT **STL**

THORIUM ISOTOPIC COUNTING REQUEST

1308

C.R. Technician: CP
Date Counted: 11/15/06
C.R. Analyst: AD
Date Analyzed: 11/15/06

Counting Time
Sample: 500 Minutes
Background: See Alpha Analysis Report

SOP's
Operating: RICHRD008
Review: RICHRD0016

BRC 11/16 631139

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS			Det #	Comment
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
JH3NJ1AA ✓		10		0	See Alpha Analysis Report for ROI Information			117	
JH3NJ1AA ✓		10		0	See Alpha Analysis Report for ROI Information			119	
JH3NJ1AA ✓		10		0	See Alpha Analysis Report for ROI Information			120	
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: AD

Date: 11/15/06

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/24/2006 8:59:06 AM

Lot No., Due Date: J6K060215; 12/01/2006

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 6324152; RTHISO Thiso by ALP

SDG, Matrix: 32992; FILTER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?	✓		

3.0 QC & Samples

	Yes	No	N/A
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?			✓
3.5 Are the sample yields and MDAs within contract limits?	✓		

4.0 Raw Data

	Yes	No	N/A
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?	✓		
4.5 Were raw counts reviewed for anomalies?	✓		

5.0 Other

	Yes	No	N/A
5.1 Are all nonconformances included and noted?	✓		
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

See NCM. 10-09031

First Level Review Pam Anderson **Date** 11-24-06

SEVERN TRENT STL

THORIUM ISOTOPIC COUNTING REQUEST

C.R. Technician VB
Date Counted 11/15
C.R. Analyst [illegible]
Date Analyzed 11/15/06

Counting Time
Sample 5W Minutes
Background See Alpha Analysis Report

SOP's
Operating: RICHRD008
Review: RICHRD0016

2202

BRC 14N 6311391

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV) (6)	Th-230 (4688 KeV) (8)	Th-232 (4010 KeV) (9)		
JH5N91AA ✓		10		0	See Alpha Analysis Report for ROI Information			119	
JH5N91AC ✓		10		0	See Alpha Analysis Report for ROI Information			120	
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: [illegible]

Date: 11/15/06

THORIUM

STANDARDS AND TRACEABILITY

12/13/2006 10:22:38 AM

Standard Material Fractions (Vials)

Vial Prep:12/12/05 to 12/14/06,SMFractionIdentifier Between THTF0847 and THTF0848, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH22906A100		Ref:	10/4/2004		2.1430E+01	± 7.070E-01	DPM/G			
THTF0847	TH-229	**4.1202E+00**	**± 1.360E-01**	DPM	0.1923	g	10/16/2006	10/16/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0848	TH-229	**4.1116E+00**	**± 1.357E-01**	DPM	0.1919	g	10/16/2006	10/16/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
		4.1159E+000	± 6.060E-003	(2)		0.147%	4.1116E+000 , 4.1202E+000					

STL Richland, SMFractions v4.8.12 Page 1 Record Count: 2

* - Isotope is an Impurity

12/13/2006 10:22.52 AM

Standard Material Fractions (Vials)

Vial Prep:12/12/05 to 12/14/06,SMFractionIdentifier Between THTF0855 and THTF0868, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH22906A100			Ref: 10/4/2004		2 1430E+01	± 7.070E-01	DPM/G			
THTF0855	TH-229	**4.0902E+00**	**± 1.350E-01**	DPM	0.1909	g	10/16/2006	10/16/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0856	TH-229	**4.1288E+00**	**± 1.362E-01**	DPM	0.1927	g	10/16/2006	10/16/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0857	TH-229	**4.0709E+00**	**± 1.343E-01**	DPM	0.19	g	10/16/2006	10/16/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0858	TH-229	**4.1245E+00**	**± 1.361E-01**	DPM	0.1925	g	10/16/2006	10/16/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0859	TH-229	**4.0088E+00**	**± 1.323E-01**	DPM	0.1871	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0860	TH-229	**4.0280E+00**	**± 1.329E-01**	DPM	0.188	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0861	TH-229	**4.0109E+00**	**± 1.324E-01**	DPM	0.1872	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0862	TH-229	**4.0430E+00**	**± 1.334E-01**	DPM	0.1887	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0863	TH-229	**4.0538E+00**	**± 1.338E-01**	DPM	0.1892	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0864	TH-229	**4.0516E+00**	**± 1.337E-01**	DPM	0.1891	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0865	TH-229	**4.0045E+00**	**± 1.321E-01**	DPM	0.1869	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0866	TH-229	**4.0602E+00**	**± 1.340E-01**	DPM	0.1895	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0867	TH-229	**4.0516E+00**	**± 1.337E-01**	DPM	0.1891	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
THTF0868	TH-229	**4.0580E+00**	**± 1.339E-01**	DPM	0.1894	g	11/10/2006	11/10/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G

4.0561E+000 ± 3.854E-002 (14) 0.950% 4.0045E+000 , 4.1288E+000

STL Richland, SMFractions v4.8.12 Page 1 Record Count: 14

* - Isotope is an Impurity

12/13/2006 10:23:03 AM

Standard Material Fractions (Vials)

Vial Prep:12/12/05 to 12/14/06,SMFractionIdentifier Between THSO0093 and THSO0093, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH22906A100			Ref: 10/4/2004		2 1430E+01	± 7.070E-01		DPM/G		
THSO0093	TH-229	**4.0624E+00**	**± 1.341E-01**	DPM	0.1896	g	8/17/2006	8/17/2006	Armstron	2.1426E+01	± 7.069E-01	DPM/G
		4.0624E+000	± 4 062E+000	(1)			4.0624E+000	, 4.0624E+000				

STL Richland, SMFractions v4.8.12 Page 1 Record Count: 2

* - Isotope is an Impurity

Th22906A

Th22906A100
Ref. 6102
21.43 ± 0.707
dpm/g
6/8/2006 DVF

Th-229 Verification Check

6/8/2006
tda

Source
Th22906A100 #6102

Source
Th23006A100 #6096

Calculation for Th229 Radiochemical Yield
*(Th229 cpm * d/c) / (Th229 dpm expected * Tracer Yield) =*

	Th229 cpm	d/c	Th229 dpm expected	Tracer Yield	RCHEM Yield
DVF2638	6.72	3.438	21.769	1.053	1.00766
DVF2639	6.744	3.339	21.73	1.036	0.999814
DVF2640	5.597	3.941	21.739	1.062	0.955033
DVF2641	5.839	4.03	21.779	1.088	0.993415
				Avg.	0.989
				Std. Dev.	0.02

Calculation for Th230Tracer Yield
(Th230 cpm) (d/c) / Th230 dpm expected) =

	Th230 cpm	d/c	Th230 dpm exp.	Tracer Yield
DVF2638	6.755	3.438	22.05	1.053
DVF2639	6.839	3.339	22.032	1.036
DVF2640	5.953	3.941	22.082	1.062
DVF2641	5.936	4.03	21.995	1.088
			Avg.	1.060
			Std. Dev.	0.02

The original NIST Cerificate is located in Document Control Dept.

SEVERN TRENT STL

COUNTING REQUEST

Type of count:					
Alpha:		count time:			units:
Beta:		count time:			units:
Gamma:		count time:		Geom.:	units:
Alpha Spec:	✓	count time:	1000		units: dpm/Sa

Requested by: TM

Date submitted: 6/6/6

	Sample ID	Isotopes of interest	Sample Date
171	DVF2638	Th22906A100	
172	2639		
173	2640		
174	2641		
175	2642	Th22902A120	
176	2643		
177	2644		
178	2645		

ADDITIONAL INSTRUCTIONS:

T060094 ED * Th22906A100 # 6102

Th23006A100 # 6096

* Th22902A120 # 5518

FORM NO.:CC-021,8/02, Rev. 2

STL RICHLAND

SEVERN TRENT **STL**

THORIUM ISOTOPIC COUNTING REQUEST

6/8
0622

C.R. Technician OP
Date Counted 6/7/06

C.R. Analyst CO
Date Analyzed 6/8/06

Counting Time
Sample 1000 Minutes

Background See Alpha Analysis Report
STLR 6/6/2006

SOP's
Operating: RICHRD008
Review: RICHRD0016
TO60094

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS			Det #	Comment
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
DVF 2638		10		0	See Alpha Analysis Report for ROI Information			171	3.438
DVF 2639		10		0	See Alpha Analysis Report for ROI Information			172	3.339
DVF 2640		10		0	See Alpha Analysis Report for ROI Information			173	3.941
DVF 2641		10		0	See Alpha Analysis Report for ROI Information			174	4.03
DVF 2642		10		0	See Alpha Analysis Report for ROI Information			175	3.405
DVF 2643		10		0	See Alpha Analysis Report for ROI Information			176	3.431
DVF 2644		10		0	See Alpha Analysis Report for ROI Information			177	3.027
DVF 2645		10		0	See Alpha Analysis Report for ROI Information			178	3.191
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: S

Date: 6/8/06

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH22906A100			Ref: 10/4/2004		2.1430E+01	± 7.070E-01		DPM/G		
DVF2638	TH-229	**2.1769E+01**	**± 7.182E-01**	DPM	1.0158	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
DVF2639	TH-229	**2.1730E+01**	**± 7.169E-01**	DPM	1.014	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
DVF2640	TH-229	**2.1739E+01**	**± 7.172E-01**	DPM	1.0144	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
DVF2641	TH-229	**2.1779E+01**	**± 7.185E-01**	DPM	1.0163	g	6/6/2006	6/6/2006	Armstron	2.1430E+01	± 7.070E-01	DPM/G
		2.1754E+001 ± 2.356E-002 (4)			0.108%		2.1730E+001 , 2.1779E+001					

* - Isotope is an Impurity

ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	10/8/2004
3) Source Identification Number / Ref. Number	***TH22906A100***		***6102***
4) Source Activity (dpm ± dpm/g)	2.1430E+03	±	7.070E-01
5) Percent error of Source Activity	3.3 %		
6) Weight of Source Material used (g)	1		
7) (% Error) of Weight of Source Material used	0.4800 %		
8) Diluent	0.5 M HNO3		
9) Total Weight of the Dilution (g)	100		
10) (% Error) of Total Weight of the Dilution	0.3000 %		
11) Specific Activity of Diluted Solution dpm/g	***2.1430E+01***	±	***7.175E-01***
12) Total Uncertainty	3.348 %		
13) Dilution Identification Number / Ref. Number	***TH22906A100***		***6102***
14) Calibration Reference Date	11/12/2003		
15) Isotope Inventory File update by/date	tda		
16) Reviewed by/date			
17) Location QCLAB	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form: CC-006, 7/15/99, Rev 3

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH23006A100			Ref: 1/28/2004		2.1698E+01	± 7.160E-01	DPM/G		
THSO0093	TH-230	**4.0748E+00**	**± 1.345E-01**	DPM	0.1878	g	8/17/2006	8/17/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
		4.0748E+000	± 4.075E+000	(1)			4.0748E+000 , 4.0748E+000				

* - Isotope is an Impurity

Th23006

Th23006A100
Ref. 6096
21.698 ± 0.716
dpm/g
5/24/2006 DVF

ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	9/15/2004
3) Source Identification Number / Ref. Number	***FROM STL DENVER***		
4) Source Activity (dpm ± dpm/g)		±	
5) Percent error of Source Activity	%		
6) Weight of Source Material used (g)			
7) (% Error) of Weight of Source Material used	#DIV/0! %		
8) Diluent			
9) Total Weight of the Dilution (g)			
10) (% Error) of Total Weight of the Dilution	3.3000 %		
11) Specific Activity of Diluted Solution dpm/g	***2.1698E+01***	±	***7.160E-01***
12) Total Uncertainty	#DIV/0! %		
13) Dilution Identification Number / Ref. Number	***Th23006A100***		***6096***
14) Calibration Reference Date	1/28/2004		
15) Isotope Inventory File update by/date	tda		6/8/2006
16) Reviewed by/date	[illegible]		10/13/06
17) Location qclab		18) Exhausted	

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form: CC-006, 7/15/99, Rev 3

Th-230 Calibration Check

5/24/2006
tda

Source
Th23006A100 #6096

Source
TH23406A100 #4857

Calculation for Th230 Radiochemical Yield
*(Th230 cpm * d/c) / (Th230 dpm expected * Tracer Yield) =*

	Th230 cpm	d/c	Th230 dpm found	Th230 dpm expected	Tracer Yield	RCHEM Yield
DVF2601	6.485	3.406	22.088	22.123	1.128	0.998414
DVF2602	6.112	3.431	20.970	22.115	1.075	0.948237
DVF2604	6.338	3.191	20.225	22.069	1.081	0.916424
					Avg.	0.954
					Std. Dev.	0.04
					rsd<10%	8.66

Calculation for Th234Tracer Yield

	COUNTS TIME	SAMPLE COUNTS	BKGRD	BKGRD CT TIME	SAMPLE CPM	SAMPLE WT (g)	REF COUNTS	REF CPM	REF WT (g)	SAMPLE CPM/G
DVF2601	20	10658	667	500	531.566	0.265	138526	6926.300	3.891	2008.183
DVF2602	20	10138	795	500	505.310	0.266	137549	6877.450	3.894	1898.948
DVF2604	20	9951	562	500	496.426	0.265	135033	6751.650	3.898	1873.306

SEVERN TRENT STL

COUNTING REQUEST

Type of count:					
Alpha:		count time:			units:
Beta:		count time:			units:
Gamma:		count time:		Geom.:	units:
Alpha Spec:	~~10~~	count time:	1000		units: dpm/Sa

Requested by: TDA

Date submitted: 5/24/06

	Sample ID	Isotopes of interest	Sample Date
175	DUF2601	Th23006A100	
		#6096	
176	2602	...	
177	2603		
178	2604		

ADDITIONAL INSTRUCTIONS:

T060089 Cppt Th23006A100 #6096

DM 5/24/06 Th23406A100 #6094

FORM NO.:CC-021,8/02, Rev. 2

STL RICHLAND

T060089

THORIUM BETA DATA FORM

SEVERN TRENT SERVICES

Th23406A100 #6094

Requested by: TDA

Lab Tech:

BETA

Analysis: Th 234

Sample ID	Vial Code	TH-234 WT.	Date-time Counted	Set ID	Gross Counts	Counting Time	Bkg. Counts	Count Room Tech
DUF2601						20min		
2602								
2603								
2604								

FORM NO. RC-097, 8/00, REV 1

Thorium Yield Determination by Beta-emitting Th-234 tracer

Reference Tracer Data: Ref. Date: 19-May-06

Ref. ID	Beta Detector	Gross Counts	Count Time	Bkg Counts	Bkg Time	Bkg CPM	Grams Found	SrY-90 Eff	DPM/g of Tracer
CAL5799	30A	138526	20	667	500	1.3340	3.891	0.4482	3971.00
CAL5800	30B	137549	20	795	500	1.5900	3.8941	0.4568	3865.08
CAL5801	30C	137829	20	704	500	1.4080	3.8875	0.4464	3970.03
CAL5802	30D	135033	20	562	500	1.1240	3.8977	0.4461	3882.36
								Average DPM/g of tracer =	3905.82

Sample Tracer Data:

VIAL ID	Tracer Mass	DPM Tracer
DVF2601	0.2647	1033.87
DVF2602	0.2661	1039.34
DVF2603	0.2653	1036.22
DVF2604	0.265	1035.04
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00

FORM NO. RC-103, REV. 2, 10/95

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH23406A100			Ref: 5/18/2006		2.3166E+03	± 3.168E+02	CPM/G			
DVF2601	TH-234	**5.1029E+02**	**± 6.979E+01**	CPM	0.2647	g	5/24/2006	5/24/2006	Armstron	1.9278E+03	± 2.636E+02	CPM/G
DVF2602	TH-234	**5.1298E+02**	**± 7.016E+01**	CPM	0.2661	g	5/24/2006	5/24/2006	Armstron	1.9278E+03	± 2.636E+02	CPM/G
DVF2603	TH-234	**5.1143E+02**	**± 6.994E+01**	CPM	0.2653	g	5/24/2006	5/24/2006	Armstron	1.9278E+03	± 2.636E+02	CPM/G
DVF2604	TH-234	**5.1085E+02**	**± 6.987E+01**	CPM	0.265	g	5/24/2006	5/24/2006	Armstron	1.9277E+03	± 2.636E+02	CPM/G
		5.1139E+002	± 1.160E+000	(4)		0.227%	5.1029E+002 , 5.1298E+002					

* - Isotope is an Impurity

5/24/2006 5:38:39 PM

Standard Material Fractions (Vials)

Vial Prep: 5/23/05 to 5/25/06,SMFractionIdentifier Between DVF2601 and DVF2604, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH23006A100		Ref:	9/15/2004		2.1698E+01	± 7.160E-01	DPM/G			
DVF2601	TH-230	**2.2123E+01**	**± 7.300E-01**	DPM	1.0196	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
DVF2602	TH-230	**2.2115E+01**	**± 7.298E-01**	DPM	1.0192	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
DVF2603	TH-230	**2.2106E+01**	**± 7.295E-01**	DPM	1.0188	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
DVF2604	TH-230	**2.2069E+01**	**± 7.283E-01**	DPM	1.0171	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
		2.2103E+001	± 2.386E-002	(4)		0.108%	2.2069E+001 , 2.2123E+001					

STL Richland, SMFractions v4.8.12 Page 1 Record Count: 5

* - Isotope is an Impurity

STL RICHLAND

SEVERN TRENT **STL**

THORIUM ISOTOPIC COUNTING REQUEST

5/25
1041

C.R. Technician MD
Date Counted 5/24/06
C.R. Analyst
Date Analyzed 6/28/06

Counting Time
Sample 1000 Minutes

Background See Alpha Analysis Report
STLR 5/24/06

SOP's
Operating: RICHRD008
Review: RICHRD0016
TO 60089

WorkOrder #	Th-229 (4845 KeV) Tracer from Th-234 Beta Count (7)				TOTAL COUNTS			Det #	Comment
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
DVF2601		10		0	See Alpha Analysis Report for ROI Information			175	3.406
DVF2602		10		0	See Alpha Analysis Report for ROI Information			176	3.431
DVF2603		10		0	See Alpha Analysis Report for ROI Information			177	3.827
DVF264		10		0	See Alpha Analysis Report for ROI Information			178	3.191
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				
		10		0	See Alpha Analysis Report for ROI Information				

Comments:

Form No: RC-012, 10/02, Rev 9

Approved by: S

Date: 6/28/06

5/24/2006 9:46:53 AM

Standard Material Fractions (Vials)

Vial Prep: 5/23/05 to 5/25/06,SMFractionIdentifier Between dvf2601 and dvf2604, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH23006A100			Ref: 9/15/2004		2.1698E+01	± 7.160E-01	DPM/G			
DVF2601	TH-230	**2.2123E+01**	**± 7.300E-01**	DPM	1.0196	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
DVF2602	TH-230	**2.2115E+01**	**± 7.298E-01**	DPM	1.0192	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
DVF2603	TH-230	**2.2106E+01**	**± 7.295E-01**	DPM	1.0188	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G
DVF2604	TH-230	**2.2069E+01**	**± 7.283E-01**	DPM	1.0171	g	5/24/2006	5/24/2006	Armstron	2.1698E+01	± 7.160E-01	DPM/G

2.2103E+001 ± 2.386E-002 (4) 0.108% 2.2069E+001 , 2.2123E+001

* - Isotope is an Impurity

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	TH23406A100		Ref:	5/18/2006		2.3166E+03	± 3.168E+02	CPM/G			
DVF2601	TH-234	**5.1029E+02**	**± 6.979E+01**	CPM	0.2647	g	5/24/2006	5/24/2006	Armstron	1.9278E+03	± 2.636E+02	CPM/G
DVF2602	TH-234	**5.1298E+02**	**± 7.016E+01**	CPM	0.2661	g	5/24/2006	5/24/2006	Armstron	1.9278E+03	± 2.636E+02	CPM/G
DVF2603	TH-234	**5.1143E+02**	**± 6.994E+01**	CPM	0.2653	g	5/24/2006	5/24/2006	Armstron	1.9278E+03	± 2.636E+02	CPM/G
DVF2604	TH-234	**5.1085E+02**	**± 6.987E+01**	CPM	0.265	g	5/24/2006	5/24/2006	Armstron	1.9277E+03	± 2.636E+02	CPM/G
		5.1139E+002 ± 1.160E+000 (4)			0.227%		5.1029E+002 , 5.1298E+002					

STL Richland, SMFractions v4.8.12 Page 2 Record Count: 8

* - Isotope is an Impurity

THORIUM

CONTINUING CALIBRATION

Quality Assurance Report. Generated 13-DEC-2006 11:38:35.76

QA Filename : RDND06::RDND06$DKA100:[ALP117.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		0.3381	| | |
11-NOV-2006 10:01	chk		0.3297	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		7.6667	| | |
11-NOV-2006 10:01	chk		7.3333	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		360.0410	| | |
11-NOV-2006 10:01	chk		360.1323	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type :

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 28-SEP-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.341150 Std Deviation : 0.002251

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		0.3439	| | |
11-NOV-2006 10:01	chk		0.3397	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		7.4432	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:01	chk		7.3440	| | |

Quality Assurance Report. Generated 13-DEC-2006 11:38:36.78

QA Filename : RDND06::RDND06$DKA100:[ALP117.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
12-NOV-2006 07:03	bkg		0.0012	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

---

12-NOV-2006 07:03 bkg 0.0004 | | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

---

12-NOV-2006 07:03 bkg 0.0012 | | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

---

12-NOV-2006 07:03 bkg 0.0004 | | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

---

12-NOV-2006 07:03 bkg 0.0004 | | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

---

12-NOV-2006 07:03 bkg 0.0060 | | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page 2

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

12-NOV-2006 07:03 bkg 0.0012 | | |

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

12-NOV-2006 07:03 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

12-NOV-2006 07:03 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

12-NOV-2006 07:03 bkg 0.0008 | | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cpm Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

12-NOV-2006 07:03 bkg 0.0000

Quality Assurance Report. Generated 13-DEC-2006 11:38:45.16

QA Filename : RDND06::RDND06$DKA100:[ALP119.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		0.2468	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		9.3333	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		354.5933	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 10-DEC-2000 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.260419 Std Deviation : 0.004601

STL-RICHLAND

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
10-NOV-2006 08:58 chk 0.2564 | | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
10-NOV-2006 08:58 chk 7.3159 | | |

Quality Assurance Report. Generated 13-DEC-2006 11:38:46.43

QA Filename : RDND06::RDND06$DKA100:[ALP119.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

---

11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0000 | | |

STL-RICHLAND

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

11-NOV-2006 10:02 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
11-NOV-2006 10:02 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
11-NOV-2006 10:02 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
11-NOV-2006 10:02 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
11-NOV-2006 10:02 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0030	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0020	| | |

Quality Assurance Report. Generated 13-DEC-2006 11:38:55.92

QA Filename : RDND06::RDND06$DKA100:[ALP120.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241
Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		0.2394	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		9.3333	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		356.1652	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type :

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 10-DEC-2000 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.244447 Std Deviation : 0.003734

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		0.2409	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 08:58	chk		7.3969	| | |

Quality Assurance Report. Generated 13-DEC-2006 11:38:57.49

QA Filename : RDND06::RDND06$DKA100:[ALP120.QA]GROUP_1_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0010	| | |
12-NOV-2006 06:47	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |
12-NOV-2006 06:47	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |
12-NOV-2006 06:47	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |
12-NOV-2006 06:47	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0020	| | |
12-NOV-2006 06:47	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0020	| | |
12-NOV-2006 06:47	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)

Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0030	| | |
12-NOV-2006 06:47	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0020	| | |
12-NOV-2006 06:47	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0020	| | |
12-NOV-2006 06:47	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |
12-NOV-2006 06:47	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

---

11-NOV-2006 10:02 bkg 0.0020 | | |
12-NOV-2006 06:47 bkg 0.0040 | | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0020 | | |
12-NOV-2006 06:47 bkg 0.0040 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0030 | | |
12-NOV-2006 06:47 bkg 0.0040 | | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

11-NOV-2006 10:02 bkg 0.0050 | | |
12-NOV-2006 06:47 bkg 0.0060 | | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0040	| | |
12-NOV-2006 06:47	bkg		0.0070	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0060	| | |
12-NOV-2006 06:47	bkg		0.0070	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0070	| | |
12-NOV-2006 06:47	bkg		0.0020	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0090	| | |
12-NOV-2006 06:47	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
11-NOV-2006 10:02	bkg		0.0000	| | |
12-NOV-2006 06:47	bkg		0.0010	| | |

Quality Assurance Report. Generated 17-JAN-2007 09:57:39.96

QA Filename : $DISK1:[ALP171.QA]GROUP_7_CHK.QAF,1

-- Multi-Test Full Report --

Description : Efficiency, Pu-239
Parameter Units : % Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.267704 Std Deviation : 0.004068

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		0.2648	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 5.888889 Std Deviation : 0.384900

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		6.5000	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type : Peak

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 337.748474 Std Deviation : 3.117171

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		337.4538	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 0.500000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.267742 Std Deviation : 0.003104

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		0.2689	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 5.651056 Std Deviation : 0.024467

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

8-NOV-2006 07:16 chk 5.6358 | | |

Quality Assurance Report. Generated 17-JAN-2007 09:57:40.65

QA Filename : $DISK1:[ALP171.QA]GROUP_7_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000323 Std Deviation : 0.000563

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000231 Std Deviation : 0.000524

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000216 Std Deviation : 0.000415

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000293 Std Deviation : 0.000552

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000262 Std Deviation : 0.000567

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000216 Std Deviation : 0.000484

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000185 Std Deviation : 0.000391

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000231 Std Deviation : 0.000460

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000293 Std Deviation : 0.000523

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000539 Std Deviation : 0.000971

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000231 Std Deviation : 0.000553

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000277 Std Deviation : 0.000626

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000308 Std Deviation : 0.000728

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000246 Std Deviation : 0.000560

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000631 Std Deviation : 0.000912

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000631 Std Deviation : 0.000929

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.002464 Std Deviation : 0.002843

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0030	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.003450 Std Deviation : 0.005704

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0060	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----

Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000847 Std Deviation : 0.001315

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 09:57:43.04

QA Filename : $DISK1:[ALP171.QA]GROUP_8_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Pu-239
Parameter Units : % Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.308455 Std Deviation : 0.004071

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		0.3093	| | |

-- Multi-Test Full Report --

Description : Constant FWHM
Parameter Units : channels Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.193940 Std Deviation : 0.343613

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		7.6667	| | |

-- Multi-Test Full Report --

Description : Centroid, Am-241
Parameter Units : channels Parameter Type : Peak

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 335.625000 Std Deviation : 7.542698

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		332.5579	| | |

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : % Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 0.500000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.308655 Std Deviation : 0.016259

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 07:16	chk		0.3130	| | |

-- Multi-Test Full Report --

Description : Energy Calibration Slope
Parameter Units : keV/chan Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00
Mean : 5.839079 Std Deviation : 0.220564

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

8-NOV-2006 07:16 chk 5.8883 | | |

Quality Assurance Report. Generated 17-JAN-2007 09:57:43.77

QA Filename : $DISK1:[ALP171.QA]GROUP_8_BKG.QAF;1

-- Multi-Test Full Report --

Description : 4010, Th-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000393 Std Deviation : 0.000630

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4196, U-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type :

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---
9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4396, U-235 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000572 Std Deviation : 0.000635

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

---

9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 4688, Th-230 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000536 Std Deviation : 0.000882

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 4776, U-234 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000429 Std Deviation : 0.000743

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0020 |In| |

-- Multi-Test Full Report --

Description : 4788, Np-237 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000322 Std Deviation : 0.000549

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4845, Th-229 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000250 Std Deviation : 0.000519

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 4882, Po-209 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000250 Std Deviation : 0.000519

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0000	| | |

-- Multi-Test Full Report --

Description : 4901, Pu-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000286 Std Deviation : 0.000535

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5155, Pu-239 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000679 Std Deviation : 0.000864

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5275, Am-243 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000572 Std Deviation : 0.000921

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0010 | | |

-- Multi-Test Full Report --

Description : 5305, Po-210 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000751 Std Deviation : 0.001077

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000858 Std Deviation : 0.001240

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej
---

9-NOV-2006 06:43 bkg 0.0000 | | |

-- Multi-Test Full Report --

Description : 5423, Th-228 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000786 Std Deviation : 0.001032

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5486, Am-241 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000894 Std Deviation : 0.001450

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5499, Pu-238 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000822 Std Deviation : 0.001443

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

-- Multi-Test Full Report --

Description : 5770, Pu-236 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.007186 Std Deviation : 0.020985

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0040	| | |

-- Multi-Test Full Report --

Description : 5805, Cm-244 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.006256 Std Deviation : 0.020016

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0060	| | |

-- Multi-Test Full Report --

Description : 6113, Cm-242 bkg (cnts/min)
Parameter Units : cnts/min Parameter Type : Nuclide

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2002 00:00 End Date : 1-JUL-2003 00:00
Mean : 0.000822 Std Deviation : 0.001417

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
9-NOV-2006 06:43	bkg		0.0010	| | |

ALPHA

SAMPLE AND QC DATA

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/21/2006 10:06:43 AM

Lot No., Due Date: J6K060215,J6K060216,J6K060219; 12/01/2006

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 6311393; RALPHA-A Alpha by GPC-Am

SDG, Matrix: 32992,32993,32994; FILTER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?			✓

3.0 QC & Samples

	Yes	No	N/A
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?			✓
3.5 Are the sample yields and MDAs within contract limits?	✓		

4.0 Raw Data

	Yes	No	N/A
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		

5.0 Other

	Yes	No	N/A
5.1 Are all nonconformances included and noted?			✓
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

First Level Review Pam Anderson **Date** 11-21-06

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 6311393

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 R Allen Date: 11-21-06

11/10/2006 11:42:52 AM

Sample Preparation/Analysis

Balance Id:1120373922

536403, Brown and Caldwell
Caldwell

Brown &

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
01 STANDARD TEST SET

Pipet #:

AnalyDueDate 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311393 FILTER pCi/sampl PM, Quote: SA , 63174

Sep2 DT/Tm Tech:

SEQ Batch, Test None

Prep Tech: WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On / Off (24hr) Circle	CR Analyst, Init/Date	Comments
8 JH3MK-1-AE J6K060216-3-SAMP 10/05/2006 10:30	0.833sa,g	12.52g,in AmtRec: FILTER	#Containers: 1	1.5	0.6	~~70~~ 150 11/10/06	1E Scr:	1600 Alpha:	Initial Beta:	
9 JH3ML-1-AE J6K060216-4-SAMP 10/05/2006 09:55	0.833sa,g	12.54g,in AmtRec: FILTER	#Containers: 1		0.5		1D Scr:	Alpha:	Beta:	
10 JH3MM-1-AE J6K060216-5-SAMP 10/05/2006 10:35	0.833sa,g	12.53g,in AmtRec: FILTER	#Containers: 1		0.5	11/10/06	1E Scr:	Alpha:	Beta:	
11 JH3NN-1-AE J6K060219-1-SAMP 10/11/2006 10:55	0.833sa,g ✓	12.52g,in AmtRec: FILTER	#Containers: 1		0.5		1A Scr:	1854 Alpha:	11/10/2006 Beta:	
12 JH3NR-1-AE J6K060219-2-SAMP 10/11/2006 11:10	0.833sa,g ✓	12.54g,in AmtRec: FILTER	#Containers: 1		0.5		1B Scr:	Alpha:	Beta:	
13 JH3NT-1-AE J6K060219-3-SAMP 10/11/2006 11:35	0.833sa,g ✓	12.55g,in AmtRec: FILTER	#Containers: 1		0.6		1C Scr:	Alpha:	Beta:	
14 JH3NV-1-AE J6K060219-4-SAMP 10/11/2006 11:00	0.833sa ✓	12.58g,in AmtRec: FILTER	#Containers: 1		0.6		1D Scr:	Alpha:	Beta:	

STL RICHLAND

11/10/2006 11:42:52 AM

Sample Preparation/Analysis

Balance id:1120373922

536403, Brown and Caldwell
Caldwell

Brown &

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311393 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst Init/Date	Comments
15 JH3NW-1-AE J6K060219-5-SAMP	0.833sa,g	12.59g,in		1.5	0.6	150	10E	1852	11/20/06	
10/11/2006 11:40		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta:
16 JH5PQ-1-AA-B J6K070000-393-BLK		12.58g,in			0.3	11/10/06	10B	2137		
10/18/2006 11:05		AmtRec:	#Containers: 1				Scr:	Alpha:		Beta:
17 JH5PQ-1-AC-C J6K070000-393-LCS		12.54g,in	ASC0422 10/23/06,pd 02/09/06,r		0.5		10A			
10/18/2006 11:05		AmtRec:	#Containers: 1				Scr:	Alpha:		Beta:

Comments:

1% collodion added to ea. Samp. 11/20/06 APA

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JH3LV1AE-SAMP Constituent List:
ALPHA RDL:20 pCi/sam LCL: UCL: RPD:
JH5PQ1AA-BLK:
ALPHA RDL:20 pCi/sam LCL: UCL: RPD:
JH5PQ1AC-LCS:

JH3LV1AE-SAMP Calc Info:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JH5PQ1AA-BLK:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JH5PQ1AC-LCS:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

71

11/21/2006 9:29:13 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/21/2005, 11/26/2006, Batch: '6311393', User: 'ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
6311393						
AC		**CalcC**	**WoodT**	11/10/2006 11:40:03		
SC			wagarr	IsBatched	11/7/2006 3:29:16 PM	ICOC_RADCALC v4.8.24
SC			WoodT	InPrep	11/10/2006 11:40:03 AM	RICH-RC-5013 Revision 5
SC			AshworthA	Sep2C	11/20/2006 10:37:25 AM	RICH-RC-5014 REVISION 6
SC			BlackCL	InCnt1	11/20/2006 10:40:03 AM	RICH-RD-0003 REVISION 4
SC			DAWKINSO	CalcC	11/20/2006 9:52:25 PM	RICH-RD-0003 REVISION 4
AC			**AshworthA**	11/20/2006 10:37:25		
AC			**BlackCL**	11/20/2006 10:40:03		
AC			**DAWKINSO**	11/20/2006 9:52:25		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.8.18

11/21/2006 9:29:13 AM

Rpt DB Transfer log (Batch Results)

SEVERN TRENT STL

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Sample Date / Mda	Units	Expected	Yield	Volumes
32992	9JH3L110			J6K0602152	P-0779	FILTER	11/3/2006 10:00:00	10/18/2006 11:30:00 AM				
ALPHA	BAS7	0		11/20/2006 12:06:48	7.22E+00	1.802E+00	1.944E+00	4.272E+00	PCI/SA	1.0	1.0E+0	2.084E-2
32992	9JH3L310			J6K0602153	P-0780	FILTER	11/3/2006 10:00:00	10/18/2006 11:55:00 AM				
ALPHA	BAS7	0		11/20/2006 12:06:48	3.5037E+00	1.58E+00	1.622E+00	5.463E+00	PCI/SA	1.0	1.0E+0	2.077E-2
32992	9JH3L510			J6K0602154	P-0781	FILTER	11/3/2006 10:00:00	10/18/2006 11:10:00 AM				
ALPHA	BAS7	0		11/20/2006 12:06:48	6.196E+00	1.781E+00	1.885E+00	5.034E+00	PCI/SA	1.0	1.0E+0	2.077E-2
32992	9JH3L610			J6K0602155	000546	FILTER	11/3/2006 10:00:00	10/18/2006 12:00:00 PM				
ALPHA	BAS7	0		11/20/2006 12:06:48	4.0391E+00	1.508E+00	1.564E+00	4.578E+00	PCI/SA	1.0	1.0E+0	2.082E-2
32992	9JH3LV10			J6K0602151	P-0778	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM				
ALPHA	BAS7	0		11/20/2006 12:06:48	4.076E+00	1.681E+00	1.734E+00	5.712E+00	PCI/SA	1.0	1.0E+0	2.088E-2
32993	9JH3MC10			J6K0602161	P-0769	FILTER	11/3/2006 10:00:00	10/5/2006 9:50:00 AM				
ALPHA	BAS7	0		11/20/2006 2:50:55 PM	2.6223E+00	1.517E+00	1.54E+00	5.717E+00	PCI/SA	1.0	1.0E+0	2.086E-2
32993	9JH3MJ10			J6K0602162	P-0770	FILTER	11/3/2006 10:00:00	10/5/2006 10:10:00 AM				
ALPHA	BAS7	0		11/20/2006 2:50:55 PM	1.8234E+00	1.14E+00	1.155E+00	4.252E+00	PCI/SA	1.0	1.0E+0	2.092E-2
32993	9JH3MK10			J6K0602163	P-0771	FILTER	11/3/2006 10:00:00	10/5/2006 10:30:00 AM				
ALPHA	BAS7	0		11/20/2006 2:50:55 PM	6.1E+00	1.859E+00	1.959E+00	5.451E+00	PCI/SA	1.0	1.0E+0	2.081E-2
32993	9JH3ML10			J6K0602164	P-0772	FILTER	11/3/2006 10:00:00	10/5/2006 9:55:00 AM				
ALPHA	BAS7	0		11/20/2006 2:50:55 PM	4.0912E+00	1.559E+00	1.612E+00	5.029E+00	PCI/SA	1.0	1.0E+0	2.076E-2
32993	9JH3MM10			J6K0602165	000544	FILTER	11/3/2006 10:00:00	10/5/2006 10:35:00 AM				
ALPHA	BAS7	0		11/20/2006 2:50:55 PM	3.2885E+00	1.411E+00	1.449E+00	4.574E+00	PCI/SA	1.0	1.0E+0	2.087E-2
32994	9JH3NN10			J6K0602191	P-0773	FILTER	11/3/2006 10:00:00	10/11/2006 10:55:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	4.8082E+00	1.76E+00	1.826E+00	5.718E+00	PCI/SA	1.0	1.0E+0	2.085E-2
32994	9JH3NR10			J6K0602192	P-0774	FILTER	11/3/2006 10:00:00	10/11/2006 11:10:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	1.8605E+00	1.163E+00	1.178E+00	4.339E+00	PCI/SA	1.0	1.0E+0	2.051E-2
32994	9JH3NT10			J6K0602193	P-0775	FILTER	11/3/2006 10:00:00	10/11/2006 11:35:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	6.8219E+00	1.926E+00	2.045E+00	5.434E+00	PCI/SA	1.0	1.0E+0	2.088E-2
32994	9JH3NV10			J6K0602194	P-0776	FILTER	11/3/2006 10:00:00	10/11/2006 11:00:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	1.9771E+00	1.293E+00	1.308E+00	4.988E+00	PCI/SA	1.0	1.0E+0	2.094E-2
32994	9JH3NW10			J6K0602195	000545	FILTER	11/3/2006 10:00:00	10/11/2006 11:40:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	2.1928E+00	1.269E+00	1.287E+00	4.627E+00	PCI/SA	1.0	1.0E+0	2.061E-2
32992	JH5PQ1AB			J6K070000393	INTRA-LAB BLANK	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM				
ALPHA	BAS7	0	B	11/20/2006 8:21:42 PM	1.8418E-03	1.698E-03	1.708E-03	7.066E-03	PCI/SA	1.0	1.0E+0	1.258E+1
32992	JH5PQ1CS			J6K070000393	INTRA-LAB CHECK	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM				
ALPHA	BAS7	0	S	11/20/2006 8:21:42 PM	1.8184E-01	1.067E-02	2.131E-02	9.508E-03	PCI/SA	1.8359E-01 1.0	1.0E+0	1.254E+1

6311393, **Samples Inserted | Updated | NotUpdated => 17 | 0 | 0,
**Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0
**Diff RptDb | Qtims =>

Batch Nbr: 6311393

Alpha Beta, Alpha by GPC-Am , Results

11/20/2006 9:48:18 PM

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	FILTER	JH3LV1AE	ALPHA	4.08E+00	(1.73E+00)		PCI/SA	R	2.36E+00	5.71E+00		100%	
Calc	S7	FILTER	JH3L11AE	ALPHA	7.22E+00	(1.94E+00)		PCI/SA	R	1.65E+00	4.27E+00		100%	
Calc	S7	FILTER	JH3L31AE	ALPHA	3.50E+00	(1.62E+00)		PCI/SA	R	2.23E+00	5.46E+00		100%	
Calc	S7	FILTER	JH3L51AE	ALPHA	6.20E+00	(1.89E+00)		PCI/SA	R	2.04E+00	5.03E+00		100%	
Calc	S7	FILTER	JH3L61AE	ALPHA	4.04E+00	(1.56E+00)		PCI/SA	R	1.78E+00	4.58E+00		100%	
Calc	S7	FILTER	JH3MC1AE	ALPHA	2.62E+00	(1.54E+00)		PCI/SA	R	2.37E+00	5.72E+00		100%	
Calc	S7	FILTER	JH3MJ1AE	ALPHA	1.82E+00	(1.16E+00)	U4	PCI/SA	R	1.64E+00	4.25E+00		100%	
Calc	S7	FILTER	JH3MK1AE	ALPHA	6.10E+00	(1.96E+00)		PCI/SA	R	2.22E+00	5.45E+00		100%	
Calc	S7	FILTER	JH3ML1AE	ALPHA	4.09E+00	(1.61E+00)		PCI/SA	R	2.04E+00	5.03E+00		100%	
Calc	S7	FILTER	JH3MM1AE	ALPHA	3.29E+00	(1.45E+00)		PCI/SA	R	1.78E+00	4.57E+00		100%	
Calc	S7	FILTER	JH3NN1AE	ALPHA	4.81E+00	(1.83E+00)		PCI/SA	R	2.37E+00	5.72E+00		100%	
Calc	S7	FILTER	JH3NR1AE	ALPHA	1.86E+00	(1.18E+00)	U4	PCI/SA	R	1.68E+00	4.34E+00		100%	
Calc	S7	FILTER	JH3NT1AE	ALPHA	6.82E+00	(2.05E+00)		PCI/SA	R	2.22E+00	5.43E+00		100%	
Calc	S7	FILTER	JH3NV1AE	ALPHA	1.98E+00	(1.31E+00)	U4	PCI/SA	R	2.03E+00	4.99E+00		100%	
Calc	S7	FILTER	JH3NW1AE	ALPHA	2.19E+00	(1.29E+00)		PCI/SA	R	1.80E+00	4.63E+00		100%	
Calc	S7	FILTER	JH5PQ1AA	ALPHA	1.84E-03	(1.71E-03)	U4	PCI/SA	R	2.73E-03	7.07E-03	B	100%	
Calc	S7	FILTER	JH5PQ1AC	ALPHA	1.82E-01	(2.13E-02)		PCI/SA	R	3.94E-03	9.51E-03	S	100%	99%

IDC met

P Anderson
11 21 06

() (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC - Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:17
RADCALC v4.8.24
STL Richland

Batch Nbr: 6311393

Alpha Beta, Alpha by GPC-Am , Calculated Results

11/20/2006 9:48:19 PM

0	11/20/06 16:05	ALPHA	23	22	GPC10C	1.5	N	N	3.8791E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5046E-01	1.0000E+00
			150	500				Y	(1.292E-02)	(0.000E+00)		8%			(0.000E+00)	48.046055	

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
	11/20/06	ALPHA	R	**6.099965**		1.09333E-01	0.281853	0.281853	1.00 Sa	100%		5.45131		
				(1.958508)		(3.3320E-02)	(0.089301)	(0.089301)	(0.014142)			2.222984		

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
9	Calc	S7	FILTER	*STLE	GabWoBS	JH3ML1AE	PCI/SA		10/05/06 09:55	11/20/06 14:50			1	1.00 Sa	
536403,P-0772					J6K060216-4 v4.8.24		FILTER			00.5				0.020785 Sa	

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	11/20/06 16:05	ALPHA	18	21	GPC10D	1.5	N	N	4.1358E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5046E-01	1.0000E+00	
			150	500			Y		(1.203E-02)	(0.000E+00)		8%			(0.000E+00)	48.158019		

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
	11/20/06	ALPHA	R	**4.091213**		7.80000E-02	0.188598	0.188598	1.00 Sa	100%		5.028837		
				(1.611986)		(2.9732E-02)	(0.073661)	(0.073661)	(0.014142)			2.04182		

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
10	Calc	S7	FILTER	*STLE	GabWoBS	JH3MM1AE	PCI/SA		10/05/06 10:35	11/20/06 14:50			1	1.00 Sa	
536403,000544					J6K060216-5 v4.8.24		FILTER			00.8				0.020875 Sa	

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	11/20/06 16:05	ALPHA	13	14	GPC10E	1.5	N	N	3.8498E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5046E-01	1.0000E+00	
			150	500			Y		(1.139E-02)	(0.000E+00)		8%			(0.000E+00)	47.907112		

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
	11/20/06	ALPHA	R	**3.288543**		5.86667E-02	0.15239	0.15239	1.00 Sa	100%		4.573939		
				(1.448894)		(2.5175E-02)	(0.066673)	(0.066673)	(0.014142)			1.781667		

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
11	Calc	S7	FILTER	*STLE	GabWoBS	JH3NN1AE	PCI/SA		10/11/06 10:55	11/20/06 17:38			1	1.00 Sa	
536403,P-0773					J6K060219-1 v4.8.24		FILTER			00.5				0.020853 Sa	

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	11/20/06 18:53	ALPHA	21	26	GPC10A	1.5	N	N	3.9535E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5046E-01	1.0000E+00	
			150	500			Y		(1.366E-02)	(0.000E+00)		8%			(0.000E+00)	47.954955		

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
	11/20/06	ALPHA	R	**4.808212**		8.80000E-02	0.222589	0.222589	1.00 Sa	100%		5.717672		
				(1.826147)		(3.2208E-02)	(0.083744)	(0.083744)	(0.014142)			2.366671		

(...) - 1s Uncertainties; Q - Qualifier; _ Result is Less Than LC - 1.645 * TPU

PreCnt:12 R-DCAALC 4.8.24

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 Significant. Date/Time - mm/dd/yy hh:mm, 24hr Time

STL Richland

Batch Nbr: 6311393

Alpha Beta, Alpha by GPC-Am , Calculated Results

11/20/2006 9:48:19 PM

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
12	Calc	S7	FILTER	*STLE	GabWoBS	JH3NR1AE	PCI/SA		10/11/06 11:10	11/20/06 17:38			1	1.00 Sa	
536403,P-0774					,J6K060219-2 v4.8.24		FILTER			00.5				0.020507 Sa	

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	11/20/06 18:53	ALPHA	9	13	GPC10B	1.5	N	N	4.0142E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(1.348E-02)	(0.000E+00)		8%			(0.000E+00)	48.764003		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/lLcC	BlkLcC/MDC	StdDvMdC/LcC
	11/20/06	ALPHA	R	**1.86049**	U4	3.40000E-02	0.0847	0.0847	1.00 Sa	100%		4.338596		
				(1.178486)		(2.1260E-02)	(0.05347)	(0.05347)	(0.014142)			1.675986		

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
13	Calc	S7	FILTER	*STLE	GabWoBS	JH3NT1AE	PCI/SA		10/11/06 11:35	11/20/06 17:38			1	1.00 Sa	
536403,P-0775					,J6K060219-3 v4.8.24		FILTER			00.6				0.02088 Sa	

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	11/20/06 18:53	ALPHA	25	22	GPC10C	1.5	N	N	3.8791E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(1.292E-02)	(0.000E+00)		8%			(0.000E+00)	47.891985		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/lLcC	BlkLcC/MDC	StdDvMdC/LcC
	11/20/06	ALPHA	R	**6.821917**		1.22667E-01	0.316226	0.316226	1.00 Sa	100%		5.433829		
				(2.04543)		(3.4628E-02)	(0.09338)	(0.09338)	(0.014142)			2.215856		

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
14	Calc	S7	FILTER	*STLE	GabWoBS	JH3NV1AE	PCI/SA		10/11/06 11:00	11/20/06 17:38			1	1.00 Sa	
536403,P-0776					,J6K060219-4 v4.8.24		FILTER			00.6				0.020943 Sa	

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	11/20/06 18:53	ALPHA	12	21	GPC10D	1.5	N	N	4.1339E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(1.203E-02)	(0.000E+00)		8%			(0.000E+00)	47.748193		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/lLcC	BlkLcC/MDC	StdDvMdC/LcC
	11/20/06	ALPHA	R	**1.977095**	U4	3.80000E-02	0.091923	0.091923	1.00 Sa	100%		4.988317		
				(1.307669)		(2.4846E-02)	(0.060611)	(0.060611)	(0.014142)			2.025368		

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
15	Calc	S7	FILTER	*STLE	GabWoBS	JH3NW1AE	PCI/SA		10/11/06 11:40	11/20/06 17:38			1	1.00 Sa	
536403,000545					,J6K060219-5 v4.8.24		FILTER			00.6				0.020614 Sa	

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	11/20/06 18:53	ALPHA	10	14	GPC10E	1.5	N	N	3.8532E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(1.140E-02)	(0.000E+00)		8%			(0.000E+00)	48.51027		

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

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

RecCnt:15

RADCALC v4.8.24

STL Richland

Batch Nbr: 6311393

Alpha Beta, Alpha by GPC-Am , Calculated Results

11/20/2006 9:48:19 PM

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
	11/20/06	ALPHA	R	**2.192799**		3.86667E-02	0.10035	0.10035	1.00 Sa	100%		4.627434		
				(1.28741)		(2.2371E-02)	(0.058685)	(0.058685)	(0.014142)			1.802504		

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
16	Calc	S7	FILTER	*STLE	GabWoBS	**JH5PQ1AA**	**PCI/SA**	**B**	10/18/06 11:05	11/20/06 20:21			1	1.00 Sa	
0,INTRA-LAB BLANK					J6K070000-393		FILTER			00.3				12.58 Sa	

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	11/20/06 21:36	ALPHA	7	13	GPC10B	1.5	N	N	4.0178E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(1.349E-02)	(0.000E+00)		8%			(0.000E+00)	0.079491		

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
	11/20/06	ALPHA	R	**0.001842**	**U4**	2.06667E-02	0.051438	0.051438	1.00 Sa	100%		0.007066		
				(0.001708)		(1.9055E-02)	(0.047638)	(0.047638)	(0.014142)			0.00273		

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
17	Calc	S7	FILTER	*STLE	GabWoBS	**JH5PQ1AC**	**PCI/SA**	**S**	10/18/06 11:05	11/20/06 20:21		ASC0422	1	1.00 Sa	
0,INTRA-LAB CHECK					J6K070000-393		FILTER			00.5		ASC0422 Alq		12.54 Sa	

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	11/20/06 21:36	ALPHA	308	26	GPC10A	1.5	N	N	3.9535E-01	1.0000E+00	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			150	500			Y		(1.366E-02)	(0.000E+00)		8%			(0.000E+00)	0.079745		

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
	11/20/06	ALPHA	R	**0.18184**		2.00133E+00	5.062211	5.062211	1.00 Sa	100%	99%	0.009508		
				(0.021312)		(1.1744E-01)	(0.531813)	(0.531813)	(0.014142)			0.003936		

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

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

RecCnt:17

RADCALC v4.8.24

STL Richland

ALPHA

STANDARDS AND TRACEABILITY

12/13/2006 10:23:15 AM

Standard Material Fractions (Vials)

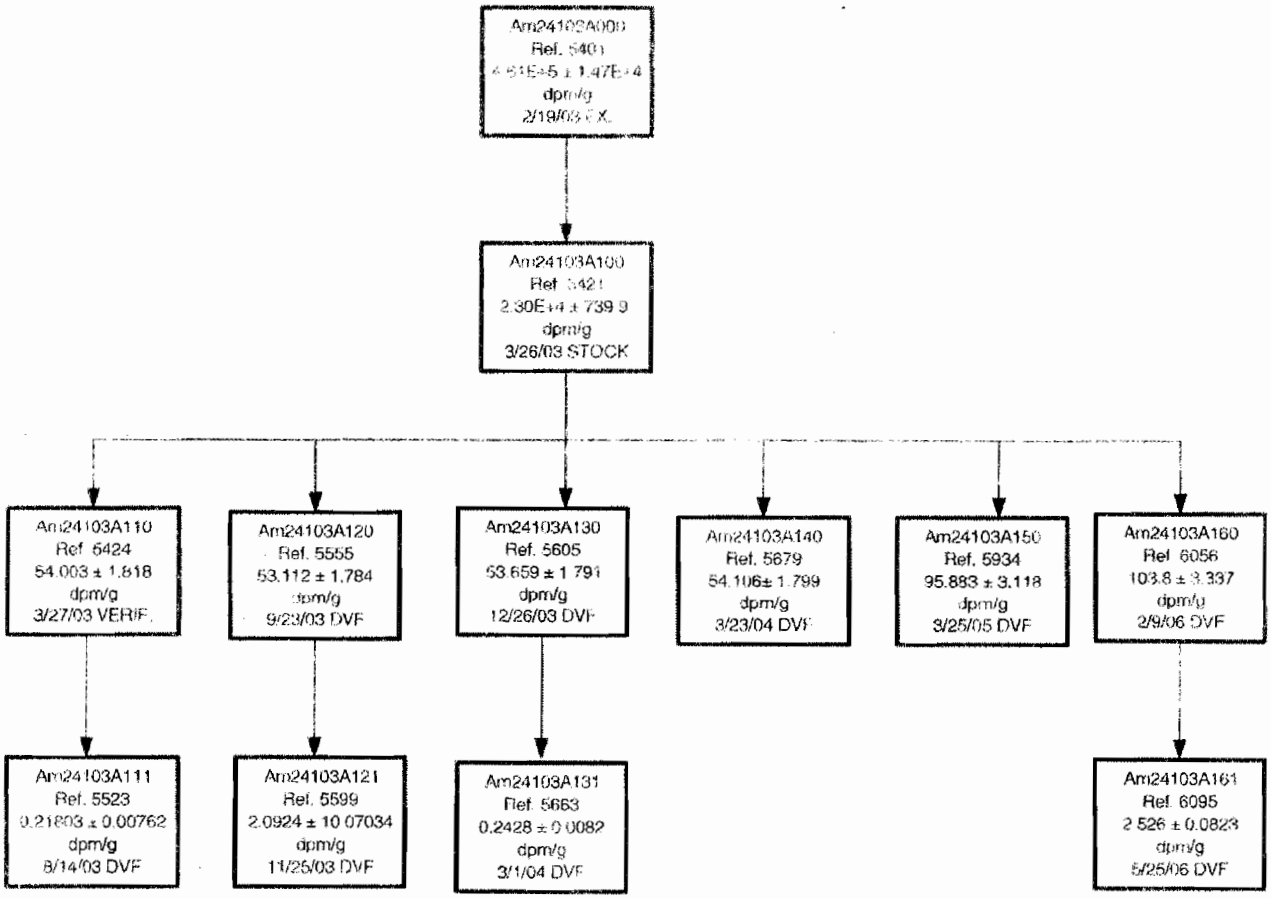
Vial Prep 12/12/06 to 12/14/06,SMFractionIdentifier Between ASC0422 and ASC0422, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration		
	Parent Standard	AM241OA160			Ref: 2/9/2006	1.0380E+02		± 3.253E+00	DPM/G	
ASC0422	AM-241	**5.1116E+00**	**± 1.609E-01**	DPM	0.0493 g	10/23/2006	10/23/2006	Armstron	1.0368E+02	± 3.249E+00	DPM/G
		5.1116E+000	± 5.112E+000	(1)		5.1116E+000		5.1116E+000		

STL Richland, SMFractions v4.8.12 Page 1 Record Count: 1

* - Isotope is an impurity

AM24103A000



ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	2/9/2006
3) Source Identification Number / Ref. Number	**AM24103A100**		**5421**
4) Source Activity (dpm ± dpm/g)	2.2910E+04	±	7.365E-02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	1.0007		
7) (% Error) of Weight of Source Material used	0.4797 %		
8) Diluent	2 M HNO3		
9) Total Weight of the Dilution (g)	220.87		
10) (% Error) of Total Weight of the Dilution	0.1358 %		
11) Specific Activity of Diluted Solution dpm/g	**1.0380E+02**	±	**3.377E+00**
12) Total Uncertainty	3.253 %		
13) Dilution Identification Number / Ref. Number	**AM24103A160**		**6056**
14) Calibration Reference Date	2/9/2006		
15) Isotope Inventory File update by/date	tda		2/9/2006
16) Reviewed by/date			
17) Location qclab	18) Exhausted		

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by W.G	2) Date Prepared		3/25/2005
3) Source Identification Number / Ref. Number	***AM24103A100***		***5421***
4) Source Activity (dpm ± dpm/g)	2.2940E+04	±	7.375E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	1.0186		
7) (% Error) of Weight of Source Material used	0.4712 %		
8) Diluent	2M HNO3-P0500135		
9) Total Weight of the Dilution (g)	243.7		
10) (% Error) of Total Weight of the Dilution	0.1231 %		
11) Specific Activity of Diluted Solution dpm/g	***9.5883E+01***	±	***3.118E+00***
12) Total Uncertainty	3.252 %		
13) Dilution Identification Number / Ref. Number	***AM24103A150***		***5934***
14) Calibration Reference Date	3/25/2005		
15) Isotope Inventory File update by/date	W.G		3/25/2005
16) Reviewed by/date	sew		3/28/2005
17) Location QCLAB/STWT1132	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = (% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	3/23/2004
3) Source Identification Number / Ref. Number	**AM24103A100**		**5421**
4) Source Activity (dpm ± dpm/g)	2.2977E+04	±	7.387E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	0.5744		
7) (% Error) of Weight of Source Material used	0.8357 %		
8) Diluent	2M HNO3-P0400085		
9) Total Weight of the Dilution (g)	243.93		
10) (% Error) of Total Weight of the Dilution	0.1230 %		
11) Specific Activity of Diluted Solution dpm/g	**5.4106E+01**	±	**1.799E+00**
12) Total Uncertainty	3.324 %		
13) Dilution Identification Number / Ref. Number	**AM24103A140**		**5679**
14) Calibration Reference Date	3/23/2004		
15) Isotope Inventory File update by/date	W.G		3/23/2004
16) Reviewed by/date	SEW		3/26/2004
17) Location QCLAB/STWT0942	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	12/26/2003
3) Source Identification Number / Ref. Number	**AM24103A100**		**5421**
4) Source Activity (dpm ± upm/g)	2.2986E+04	±	7.390E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	0.5414		
7) (% Error) of Weight of Source Material used	0.8866 %		
8) Diluent	2M HNO3-P0300705		
9) Total Weight of the Dilution (g)	231.92		
10) (% Error) of Total Weight of the Dilution	0.1294 %		
11) Specific Activity of Diluted Solution dpm/g	**5.3659E+01**	**±**	**1.791E+00**
12) Total Uncertainty	3.338 %		
13) Dilution Identification Number / Ref. Number	**AM24103A130**		**5605**
14) Calibration Reference Date	12/26/2003		
15) Isotope Inventory File update by/date	W.G		12/26/2003
16) Reviewed by/date	SEW		1/5/2004
17) Location QCLAB/STWT0894	18) Exhausted		

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form: CC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by	W.G	2) Date Prepared	9/23/2003
3) Source Identification Number / Ref. Number	**AM24103A100**		**5421**
4) Source Activity (dpm ± dpm/g)	2.2996E+04	±	7.393E+02
5) Percent error of Source Activity	3.215 %		
6) Weight of Source Material used (g)	0.4983		
7) (% Error) of Weight of Source Material used	0.9633 %		
8) Diluent	2M HNO3-P0300455		
9) Total Weight of the Dilution (g)	215.75		
10) (% Error) of Total Weight of the Dilution	0.1390 %		
11) Specific Activity of Diluted Solution dpm/g	**5.3112E+01**	±	**1.784E+00**
12) Total Uncertainty	3.359 %		
13) Dilution Identification Number / Ref. Number	**AM24103A120**		**5555**
14) Calibration Reference Date	9/23/2003		
15) Isotope Inventory File update by/date	W.G		9/23/2003
16) Reviewed by/date	SEW		9/24/2003
17) Location QCLAB/STWT0853	18) Exhausted		

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form QC-006, 7/15/99, Rev 3

ISOTOPE DILUTION RECORD

1) Prepared by W.G 2) Date Prepared 3/26/03

3) Source Identification Number / Ref. Number	***AM24103A000***		***5401***
4) Source Activity (dpm ± dpm/g)	4.6049E+05	±	1.474E+04
5) Percent error of Source Activity	3.2 %		
6) Weight of Source Material used (g)	5.0651		
7) (% Error) of Weight of Source Material used	0.0948 %		
8) Diluent	2M HNO3-P0300164		
9) Total Weight of the Dilution (g)	101.35		
10) (% Error) of Total Weight of the Dilution	0.2960 %		
11) Specific Activity of Diluted Solution dpm/g	***2.3014E+04***	±	***7.399E+02***
12) Total Uncertainty	3.215 %		
13) Dilution Identification Number / Ref. Number	***AM24103A100***		***5421***
14) Calibration Reference Date	3/26/03		
15) Isotope Inventory File update by/date	W.G		3/26/03
16) Reviewed by/date	SEW		3/26/03
17) Location QCLAB/STWT0754	18) Exhausted		

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = √(% error of Source Activity ^2 + % error of Wt. Used^2 + % error of Dilution Wt.^2)

Form CC-006, 7/15/99, Rev 3

ISOTOPE RECORD FORM

1) Isotope: Am-241
2) Reference Number: 5401
3) Half Life: 433 yrs.
4) Storage Location: Std. Lab
5) Source Identification Number: Am24103A000

****

CALIBRATION DATA

6) Activity as Received Units: 3.923E+04 dps
7) Overall Uncertainty Percent: 3.2%
8) Reference Date / Time: 19-FEB-03 12:00 EST (9:00AM)
9) Activity dpm/g: 4.6056E+5 ± 1.4740E+4 dpm/g
10) Volume or Mass (ml/g): 5.11069 g
11) Calibrated by: ANALYTICS
12) Certificate Solution Number: 65621-310

****

SURVEY DATA

13) Date Received: 2/24/03
14) Surveyed by: W.G
15) Survey Reading (Beta/Gamma) cpm: <100 outside of surface
16) Survey Reading (Alpha) cpm: <100 outside of surface

****

17) Activity Conversion 3.923E+04dps*60s/m/5.011069g = 4.606E+05 ± 1.474E+04 dpm/g

18) Remarks

19) Isotope File Updated by: W.G 2/24/03
20) QC Approved: SEW 3/11/03

ANALYTICS

#5401
Rec'd 2/24/3UA

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318 U.S.A.
Phone (404) 352-8677
Fax (404) 352-2837

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

65621-310

Am-241 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting.

Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Am-241
ACTIVITY (dps):	3.923 E4
HALF-LIFE:	4.322 E2 years
CALIBRATION DATE:	February 19, 2003 12:00 EST
TOTAL UNCERTAINTY*:	3.2%
SYSTEMATIC:	2.2%
RANDOM:	1.0%

*99% confidence level.

5.11069 grams 1M HCl solution.

Impurities: γ-impurities <0.1%
α-impurities <0.1%

P O NUMBER 1703541-000 OP, Item 1

SOURCE PREPARED BY: M Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED: M. [signature] 2-20-03

STL RICHLAND

ALPHA

CONTINUING CALIBRATION

Quality Assurance Report. Generated 13-DEC-2006 10:08:54.03

QA Filename : $DISK1:[QUADIO.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : Quad10A (Hex 1) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 47.599998 Upper Bound : 50.500000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 49.065498 Std Deviation : 0.463531

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:42	CHK		48.7000	| | |
2-NOV-2006 06:12	CHK		48.7000	| | |
2-NOV-2006 06:33	CHK		No Value	| | |
3-NOV-2006 06:34	CHK		49.2000	| | |
4-NOV-2006 05:14	CHK		49.0000	| | |
5-NOV-2006 08:58	CHK		49.1000	| | |
6-NOV-2006 05:20	CHK		48.7000	| | |
7-NOV-2006 06:11	CHK		49.6000	| | |
8-NOV-2006 05:00	CHK		49.9000	| | |
8-NOV-2006 05:22	CHK		No Value	| | |
9-NOV-2006 06:28	CHK		49.6000	| | |
9-NOV-2006 06:50	CHK		No Value	| | |
10-NOV-2006 06:32	CHK		46.7000	Be|Ac| |
10-NOV-2006 06:53	CHK		47.7000	|In| |
10-NOV-2006 07:16	CHK		No Value	| | |
11-NOV-2006 07:57	CHK		49.3000	| | |
12-NOV-2006 06:16	CHK		48.7000	| | |
13-NOV-2006 05:14	CHK		49.4000	| | |
14-NOV-2006 05:37	CHK		49.1000	| | |
15-NOV-2006 05:02	CHK		49.5000	| | |
15-NOV-2006 05:26	CHK		No Value	| | |

16-NOV-2006 06:22	CHK	49.1000	| | |
17-NOV-2006 05:21	CHK	49.2000	| | |
17-NOV-2006 05:44	CHK	No Value	| | |
20-NOV-2006 05:00	CHK	49.3000	| | |
21-NOV-2006 06:37	CHK	48.9000	| | |
22-NOV-2006 07:06	CHK	49.4000	| | |
23-NOV-2006 06:30	CHK	49.0000	| | |
23-NOV-2006 06:54	CHK	No Value	| | |
24-NOV-2006 08:55	CHK	48.6000	| | |
25-NOV-2006 08:48	CHK	50.1000	|In| |
25-NOV-2006 09:18	CHK	No Value	| | |
27-NOV-2006 05:31	CHK	49.5000	| | |
28-NOV-2006 04:46	CHK	49.4000	| | |
29-NOV-2006 05:07	CHK	49.9000	| | |
29-NOV-2006 05:28	CHK	No Value	| | |

-- Multi-Test Full Report --

Description : Quad10B (Hex 2) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 40.400002 Upper Bound : 43.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 41.726315 Std Deviation : 0.416509

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:42	CHK		41.9000	| | |
2-NOV-2006 06:12	CHK		42.0000	| | |
2-NOV-2006 06:33	CHK		No Value	| | |
3-NOV-2006 06:34	CHK		41.9000	| | |
4-NOV-2006 05:14	CHK		42.6000	|In| |
5-NOV-2006 08:58	CHK		41.8000	| | |
6-NOV-2006 05:20	CHK		41.9000	| | |

7-NOV-2006 06:11	CHK	41.8000	| | |
8-NOV-2006 05:00	CHK	42.5000	| | |
8-NOV-2006 05:22	CHK	No Value	| | |
9-NOV-2006 06:28	CHK	42.2000	| | |
9-NOV-2006 06:50	CHK	No Value	| | |
10-NOV-2006 06:32	CHK	40.7000	|In| |
10-NOV-2006 06:53	CHK	No Value	| | |
10-NOV-2006 07:16	CHK	No Value	| | |
11-NOV-2006 07:57	CHK	41.7000	| | |
12-NOV-2006 06:16	CHK	41.6000	| | |
13-NOV-2006 05:14	CHK	41.8000	| | |
14-NOV-2006 05:37	CHK	41.8000	| | |
15-NOV-2006 05:02	CHK	41.4000	| | |
15-NOV-2006 05:26	CHK	No Value	| | |
16-NOV-2006 06:22	CHK	41.8000	| | |
17-NOV-2006 05:21	CHK	41.0000	| | |
17-NOV-2006 05:44	CHK	No Value	| | |
20-NOV-2006 05:00	CHK	41.7000	| | |
21-NOV-2006 06:37	CHK	42.2000	| | |
22-NOV-2006 07:06	CHK	42.0000	| | |
23-NOV-2006 06:30	CHK	41.8000	| | |
23-NOV-2006 06:54	CHK	No Value	| | |
24-NOV-2006 08:55	CHK	41.4000	| | |
25-NOV-2006 08:48	CHK	42.0000	| | |
25-NOV-2006 09:18	CHK	No Value	| | |
27-NOV-2006 05:31	CHK	41.1000	| | |
28-NOV-2006 04:46	CHK	41.5000	| | |
29-NOV-2006 05:07	CHK	43.1000	Ab|Ac| |
29-NOV-2006 05:28	CHK	41.3000	| | |

-- Multi-Test Full Report --

Description : Quad10C (Hex 3) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44.900002 Upper Bound : 49.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 46.962921 Std Deviation : 0.670843

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:42	CHK		48.9000	|In| |
2-NOV-2006 06:12	CHK		48.8000	|In| |

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
2-NOV-2006 06:33	CHK		No Value	| | |
3-NOV-2006 06:34	CHK		48.2000	| | |
4-NOV-2006 05:14	CHK		48.9000	|In| |
5-NOV-2006 08:58	CHK		48.8000	|In| |
6-NOV-2006 05:20	CHK		48.5000	|In| |
7-NOV-2006 06:11	CHK		45.9000	| | |
8-NOV-2006 05:00	CHK		49.3000	Ab|Ac| |
8-NOV-2006 05:22	CHK		48.2000	| | |
9-NOV-2006 06:28	CHK		49.2000	Ab|Ac| |
9-NOV-2006 06:50	CHK		48.0000	| | |
10-NOV-2006 06:32	CHK		28.9000	Be|Ac| |
10-NOV-2006 06:53	CHK		33.5000	Be|Ac| |
10-NOV-2006 07:16	CHK		49.2000	Ab|Ac| |
11-NOV-2006 07:57	CHK		48.6000	|In| |
12-NOV-2006 06:16	CHK		48.8000	|In| |
13-NOV-2006 05:14	CHK		48.4000	|In| |
14-NOV-2006 05:37	CHK		48.1000	| | |
15-NOV-2006 05:02	CHK		49.1000	Ab|Ac| |
15-NOV-2006 05:26	CHK		48.7000	|In| |
16-NOV-2006 06:22	CHK		48.2000	| | |
17-NOV-2006 05:21	CHK		46.3000	| | |
17-NOV-2006 05:44	CHK		No Value	| | |
20-NOV-2006 05:00	CHK		46.1000	| | |
21-NOV-2006 06:37	CHK		48.4000	|In| |
22-NOV-2006 07:06	CHK		48.4000	|In| |
23-NOV-2006 06:30	CHK		49.2000	Ab|Ac| |
23-NOV-2006 06:54	CHK		48.6000	|In| |
24-NOV-2006 08:55	CHK		48.5000	|In| |
25-NOV-2006 08:48	CHK		49.3000	Ab|Ac| |
25-NOV-2006 09:18	CHK		0.0000	Be|Ac| |
27-NOV-2006 05:31	CHK		48.4000	|In| |
28-NOV-2006 04:46	CHK		48.2000	| | |
29-NOV-2006 05:07	CHK		47.7000	| | |
29-NOV-2006 05:28	CHK		No Value	| | |

STL-RICHLAND

-- Multi-Test Full Report --

Description : Quad10D (Hex 4) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.299999 Upper Bound : 50.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 48.150002 Std Deviation : 0.600698

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:42	CHK		48.6000	| | |
2-NOV-2006 06:12	CHK		49.0000	| | |
2-NOV-2006 06:33	CHK		No Value	| | |
3-NOV-2006 06:34	CHK		48.2000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
4-NOV-2006 05:14	CHK		47.4000	| | |
5-NOV-2006 08:58	CHK		48.1000	| | |
6-NOV-2006 05:20	CHK		48.3000	| | |
7-NOV-2006 06:11	CHK		48.3000	| | |
8-NOV-2006 05:00	CHK		48.9000	| | |
8-NOV-2006 05:22	CHK		No Value	| | |
9-NOV-2006 06:28	CHK		48.7000	| | |
9-NOV-2006 06:50	CHK		No Value	| | |
10-NOV-2006 06:32	CHK		44.4000	Be|Ac| |
10-NOV-2006 06:53	CHK		42.1000	Be|Ac| |
10-NOV-2006 07:16	CHK		48.2000	| | |
11-NOV-2006 07:57	CHK		48.2000	| | |
12-NOV-2006 06:16	CHK		48.3000	| | |
13-NOV-2006 05:14	CHK		48.5000	| | |
14-NOV-2006 05:37	CHK		48.7000	| | |
15-NOV-2006 05:02	CHK		47.3000	| | |
15-NOV-2006 05:26	CHK		No Value	| | |
16-NOV-2006 06:22	CHK		47.7000	| | |

STL/PITCHLAND

17-NOV-2006 05:21	CHK	48.8000	| | |
17-NOV-2006 05:44	CHK	No Value	| | |
20-NOV-2006 05:00	CHK	47.7000	| | |
21-NOV-2006 06:37	CHK	48.0000	| | |
22-NOV-2006 07:06	CHK	48.4000	| | |
23-NOV-2006 06:30	CHK	48.1000	| | |
23-NOV-2006 06:54	CHK	No Value	| | |
24-NOV-2006 08:55	CHK	48.0000	| | |
25-NOV-2006 08:48	CHK	48.9000	| | |
25-NOV-2006 09:18	CHK	No Value	| | |
27-NOV-2006 05:31	CHK	48.0000	| | |
28-NOV-2006 04:46	CHK	48.0000	| | |
29-NOV-2006 05:07	CHK	49.0000	| | |
29-NOV-2006 05:28	CHK	No Value	| | |

-- Multi-Test Full Report --

Description : Quad10E (Hex 5) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44.799999 Upper Bound : 48.599998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 46.425556 Std Deviation : 0.531481

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:42	CHK		46.7000	| | |
2-NOV-2006 06:12	CHK		45.5000	| | |
2-NOV-2006 06:33	CHK		No Value	| | |
3-NOV-2006 06:34	CHK		46.0000	| | |
4-NOV-2006 05:14	CHK		46.5000	| | |
5-NOV-2006 08:58	CHK		46.0000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
6-NOV-2006 05:20	CHK		46.8000	| | |
7-NOV-2006 06:11	CHK		46.6000	| | |

8-NOV-2006 05:00	CHK	46.6000	| | |
8-NOV-2006 05:22	CHK	No Value	| | |
9-NOV-2006 06:28	CHK	46.7000	| | |
9-NOV-2006 06:50	CHK	No Value	| | |
10-NOV-2006 06:32	CHK	47.8000	|In| |
10-NOV-2006 06:53	CHK	No Value	| | |
10-NOV-2006 07:16	CHK	No Value	| | |
11-NOV-2006 07:57	CHK	45.7000	| | |
12-NOV-2006 06:16	CHK	45.7000	| | |
13-NOV-2006 05:14	CHK	46.4000	| | |
14-NOV-2006 05:37	CHK	46.4000	| | |
15-NOV-2006 05:02	CHK	46.1000	| | |
15-NOV-2006 05:26	CHK	No Value	| | |
16-NOV-2006 06:22	CHK	45.7000	| | |
17-NOV-2006 05:21	CHK	45.8000	| | |
17-NOV-2006 05:44	CHK	No Value	| | |
20-NOV-2006 05:00	CHK	45.8000	| | |
21-NOV-2006 06:37	CHK	46.5000	| | |
22-NOV-2006 07:06	CHK	45.9000	| | |
23-NOV-2006 06:30	CHK	46.8000	| | |
23-NOV-2006 06:54	CHK	No Value	| | |
24-NOV-2006 08:55	CHK	45.5000	| | |
25-NOV-2006 08:48	CHK	46.5000	| | |
25-NOV-2006 09:18	CHK	No Value	| | |
27-NOV-2006 05:31	CHK	46.1000	| | |
28-NOV-2006 04:46	CHK	45.1000	|In| |
29-NOV-2006 05:07	CHK	47.5000	|In| |
29-NOV-2006 05:28	CHK	No Value	| | |

-- Multi-Test Full Report --

Description : Quad10F (Hex 6) alpha %Eff
Parameter Units : Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 46.700001 Upper Bound : 50.099998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 10-JAN-2006 00:00 End Date : 1-MAR-2006 00:00
Mean : 48.417023 Std Deviation : 0.513860

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:42	CHK		47.5000	| | |
2-NOV-2006 06:12	CHK		45.8000	Be|Ac|
2-NOV-2006 06:33	CHK		48.5000	| | |
3-NOV-2006 06:34	CHK		48.0000	| | |
4-NOV-2006 05:14	CHK		48.4000	| | |
5-NOV-2006 08:58	CHK		45.9000	Be|Ac| |
6-NOV-2006 05:20	CHK		48.4000	| | |
7-NOV-2006 06:11	CHK		48.7000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
8-NOV-2006 05:00	CHK		49.5000	|In| |
8-NOV-2006 05:22	CHK		No Value	| | |
9-NOV-2006 06:28	CHK		48.9000	| | |
9-NOV-2006 06:50	CHK		No Value	| | |
10-NOV-2006 06:32	CHK		51.4000	Ab|Ac| |
10-NOV-2006 06:53	CHK		48.2000	| | |
10-NOV-2006 07:16	CHK		No Value	| | |
11-NOV-2006 07:57	CHK		48.5000	| | |
12-NOV-2006 06:16	CHK		49.2000	| | |
13-NOV-2006 05:14	CHK		48.7000	| | |
14-NOV-2006 05:37	CHK		48.4000	| | |
15-NOV-2006 05:02	CHK		48.6000	| | |
15-NOV-2006 05:26	CHK		No Value	| | |
16-NOV-2006 06:22	CHK		48.4000	| | |
17-NOV-2006 05:21	CHK		45.9000	Be|Ac| |
17-NOV-2006 05:44	CHK		48.3000	| | |
20-NOV-2006 05:00	CHK		48.7000	| | |
21-NOV-2006 06:37	CHK		48.1000	| | |
22-NOV-2006 07:06	CHK		46.2000	Be|Ac| |
23-NOV-2006 06:30	CHK		48.4000	| | |
23-NOV-2006 06:54	CHK		No Value	| | |
24-NOV-2006 08:55	CHK		48.1000	| | |
25-NOV-2006 08:48	CHK		49.4000	| | |
25-NOV-2006 09:18	CHK		No Value	| | |
27-NOV-2006 05:31	CHK		46.1000	Be|Ac| |
28-NOV-2006 04:46	CHK		48.2000	| | |
29-NOV-2006 05:07	CHK		49.1000	| | |
29-NOV-2006 05:28	CHK		No Value	| | |

STL RICHLAND

Quality Assurance Report. Generated 17-JAN-2007 08:43:23.18

QA Filename : $DISK1:[QUAD10.QA]BKG_15.QAF;2

-- Multi-Test Full Report --

Description : Quad10A (Hex 1) alph bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.046053 Std Deviation : 0.013942

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 04:39	BKG		0.0700	| | |
2-NOV-2006 05:50	BKG		0.0600	| | |
3-NOV-2006 06:12	BKG		0.0500	| | |
4-NOV-2006 04:52	BKG		0.0400	| | |
5-NOV-2006 02:01	BKG		0.0600	| | |
6-NOV-2006 02:18	BKG		0.0500	| | |
7-NOV-2006 05:48	BKG		0.0300	| | |
8-NOV-2006 04:13	BKG		0.0400	| | |
9-NOV-2006 05:55	BKG		0.0500	| | |
10-NOV-2006 06:10	BKG		0.0400	| | |
11-NOV-2006 04:27	BKG		0.0300	| | |
11-NOV-2006 23:41	BKG		0.0500	| | |
12-NOV-2006 21:12	BKG		0.0400	| | |
14-NOV-2006 02:18	BKG		0.0600	| | |
14-NOV-2006 02:18	BKG		0.0500	| | |
14-NOV-2006 20:58	BKG		0.0200	| | |
15-NOV-2006 04:31	BKG		0.1400	|Ac| |
15-NOV-2006 09:00	BKG		0.0500	| | |
16-NOV-2006 05:47	BKG		0.0400	| | |
17-NOV-2006 04:55	BKG		0.0200	| | |
18-NOV-2006 05:10	BKG		0.0400	| | |
18-NOV-2006 23:31	BKG		0.0300	| | |
19-NOV-2006 22:27	BKG		0.0500	| | |
21-NOV-2006 06:15	BKG		0.0400	| | |
22-NOV-2006 06:07	BKG		0.0400	| | |

23-NOV-2006 04:48	BKG	0.0400	| | |
23-NOV-2006 18:28	BKG	0.0500	| | |
24-NOV-2006 21:43	BKG	0.0500	| | |
26-NOV-2006 01:03	BKG	0.0400	| | |
26-NOV-2006 16:08	BKG	0.0400	| | |
28-NOV-2006 03:51	BKG	0.0600	| | |
29-NOV-2006 03:31	BKG	0.0700	| | |

-- Multi-Test Full Report --

Description : Quad10B (Hex 2) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.033122 Std Deviation : 0.010930

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 04:39	BKG		0.0300	| | |
2-NOV-2006 05:50	BKG		0.0300	| | |
3-NOV-2006 06:12	BKG		0.0300	| | |
4-NOV-2006 04:52	BKG		0.0200	| | |
5-NOV-2006 02:01	BKG		0.0900	|Ac| |
6-NOV-2006 02:18	BKG		0.0600	|In| |
7-NOV-2006 05:48	BKG		0.0400	| | |
8-NOV-2006 04:13	BKG		0.0400	| | |
9-NOV-2006 05:55	BKG		0.0400	| | |
10-NOV-2006 06:10	BKG		0.0300	| | |
11-NOV-2006 04:27	BKG		0.0300	| | |
11-NOV-2006 23:41	BKG		0.0200	| | |
12-NOV-2006 21:12	BKG		0.0200	| | |
14-NOV-2006 02:18	BKG		0.0500	| | |
14-NOV-2006 02:18	BKG		0.0500	| | |
14-NOV-2006 20:58	BKG		0.0800	|Ac| |
15-NOV-2006 04:31	BKG		0.0600	|In| |
15-NOV-2006 09:00	BKG		No Value	| | |

16-NOV-2006 05:47	BKG	0.0300	| |	|
17-NOV-2006 04:55	BKG	0.0300	| |	|
18-NOV-2006 05:10	BKG	0.0300	| |	|
18-NOV-2006 23:31	BKG	0.0200	| |	|
19-NOV-2006 22:27	BKG	0.0300	| |	|
21-NOV-2006 06:15	BKG	0.0200	| |	|
22-NOV-2006 06:07	BKG	0.0200	| |	|
23-NOV-2006 04:48	BKG	0.0400	| |	|
23-NOV-2006 18:28	BKG	0.0300	| |	|
24-NOV-2006 21:43	BKG	0.0300	| |	|
26-NOV-2006 01:03	BKG	0.0200	| |	|
26-NOV-2006 16:08	BKG	0.0300	| |	|
28-NOV-2006 03:51	BKG	0.0400	| |	|
29-NOV-2006 03:31	BKG	0.0300	| |	|

-- Multi-Test Full Report --

Description : Quad10C (Hex 3) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.036349 Std Deviation : 0.011573

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 04:39	BKG		0.0300	| | |
2-NOV-2006 05:50	BKG		0.0600	|In| |
3-NOV-2006 06:12	BKG		0.0500	| | |
4-NOV-2006 04:52	BKG		0.0400	| | |
5-NOV-2006 02:01	BKG		0.0300	| | |
6-NOV-2006 02:18	BKG		0.0300	| | |
7-NOV-2006 05:48	BKG		0.0400	| | |
8-NOV-2006 04:13	BKG		0.0500	| | |
9-NOV-2006 05:55	BKG		0.0500	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
10-NOV-2006 06:10	BKG		0.0600	|In| |
11-NOV-2006 04:27	BKG		0.0600	|In| |

11-NOV-2006 23:41	BKG	0.0400	| |	|
12-NOV-2006 21:12	BKG	0.0500	| |	|
14-NOV-2006 02:18	BKG	0.0300	| |	|
14-NOV-2006 02:18	BKG	0.0400	| |	|
14-NOV-2006 20:58	BKG	0.0000	|Ac|	|
15-NOV-2006 04:31	BKG	0.0900	|Ac|	|
15-NOV-2006 09:00	BKG	0.0500	| |	|
16-NOV-2006 05:47	BKG	0.0400	| |	|
17-NOV-2006 04:55	BKG	0.0500	| |	|
18-NOV-2006 05:10	BKG	0.0400	| |	|
18-NOV-2006 23:31	BKG	0.0400	| |	|
19-NOV-2006 22:27	BKG	0.0400	| |	|
21-NOV-2006 06:15	BKG	0.0400	| |	|
22-NOV-2006 06:07	BKG	0.0300	| |	|
23-NOV-2006 04:48	BKG	0.0300	| |	|
23-NOV-2006 18:28	BKG	0.0500	| |	|
24-NOV-2006 21:43	BKG	0.0500	| |	|
26-NOV-2006 01:03	BKG	0.0300	| |	|
26-NOV-2006 16:08	BKG	0.0400	| |	|
28-NOV-2006 03:51	BKG	0.0400	| |	|
29-NOV-2006 03:31	BKG	0.0700	|In|	|

-- Multi-Test Full Report --

Description : Quad10D (Hex 4) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.041587 Std Deviation : 0.010848

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 04:39	BKG		0.0500	| | |
2-NOV-2006 05:50	BKG		0.0400	| | |
3-NOV-2006 06:12	BKG		0.0500	| | |
4-NOV-2006 04:52	BKG		0.0500	| | |
5-NOV-2006 02:01	BKG		0.0500	| | |
6-NOV-2006 02:18	BKG		0.0500	| | |
7-NOV-2006 05:48	BKG		0.0400	| | |
8-NOV-2006 04:13	BKG		0.0600	| | |

9-NOV-2006 05:55	BKG		0.0500		
10-NOV-2006 06:10	BKG		0.0400		
11-NOV-2006 04:27	BKG		0.0500		
11-NOV-2006 23:41	BKG		0.0400		
12-NOV-2006 21:12	BKG		0.0400		
14-NOV-2006 02:18	BKG		0.0300		
14-NOV-2006 02:18	BKG		0.0300		
14-NOV-2006 20:58	BKG		0.0000	Ac	
15-NOV-2006 04:31	BKG		0.0600		
15-NOV-2006 09:00	BKG		No Value		

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU	SD	UD	BS Rej
16-NOV-2006 05:47	BKG		0.0600				
17-NOV-2006 04:55	BKG		0.0600				
18-NOV-2006 05:10	BKG		0.0400				
18-NOV-2006 23:31	BKG		0.0400				
19-NOV-2006 22:27	BKG		0.0400				
21-NOV-2006 06:15	BKG		0.0500				
22-NOV-2006 06:07	BKG		0.0400				
23-NOV-2006 04:48	BKG		0.0200				
23-NOV-2006 18:28	BKG		0.0400				
24-NOV-2006 21:43	BKG		0.0500				
26-NOV-2006 01:03	BKG		0.0400				
26-NOV-2006 16:08	BKG		0.0500				
28-NOV-2006 03:51	BKG		0.0600				
29-NOV-2006 03:31	BKG		0.0300				

-- Multi-Test Full Report --

Description : Quad10E (Hex 5) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.028421 Std Deviation : 0.011712

Measurement Time	Sample ID	Sample Analyst	Value	LU	SD	UD	BS Rej
1-NOV-2006 04:39	BKG		0.0200				

2-NOV-2006 05:50	BKG	0.0300			
3-NOV-2006 06:12	BKG	0.0200			
4-NOV-2006 04:52	BKG	0.0100			
5-NOV-2006 02:01	BKG	0.0200			
6-NOV-2006 02:18	BKG	0.0200			
7-NOV-2006 05:48	BKG	0.0300			
8-NOV-2006 04:13	BKG	0.0200			
9-NOV-2006 05:55	BKG	0.0200			
10-NOV-2006 06:10	BKG	0.0200			
11-NOV-2006 04:27	BKG	0.0100			
11-NOV-2006 23:41	BKG	0.0300			
12-NOV-2006 21:12	BKG	0.0200			
14-NOV-2006 02:18	BKG	0.0200			
14-NOV-2006 02:18	BKG	0.0100			
14-NOV-2006 20:58	BKG	0.0800	Ac		
15-NOV-2006 04:31	BKG	0.1000	Ac		
15-NOV-2006 09:00	BKG	0.0300			
16-NOV-2006 05:47	BKG	0.0200			
17-NOV-2006 04:55	BKG	0.0100			
18-NOV-2006 05:10	BKG	0.0200			
18-NOV-2006 23:31	BKG	0.0200			
19-NOV-2006 22:27	BKG	0.0300			
21-NOV-2006 06:15	BKG	0.0200			
22-NOV-2006 06:07	BKG	0.0300			
23-NOV-2006 04:48	BKG	0.0200			
23-NOV-2006 18:28	BKG	0.0300			

Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU	SD	UD	BS Rej
24-NOV-2006 21:43	BKG		0.0100				
26-NOV-2006 01:03	BKG		0.0200				
26-NOV-2006 16:08	BKG		0.0200				
28-NOV-2006 03:51	BKG		0.0200				
29-NOV-2006 03:31	BKG		0.0100				

-- Multi-Test Full Report --

Description : Quad10F (Hex 6) alpha bkg
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----

Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00

Mean : 0.013053 Std Deviation : 0.032288

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 04:39	BKG		0.0300	| | |
2-NOV-2006 05:50	BKG		0.0400	| | |
3-NOV-2006 06:12	BKG		0.0300	| | |
4-NOV-2006 04:52	BKG		0.0400	| | |
5-NOV-2006 02:01	BKG		0.1300	|Ac| |
6-NOV-2006 02:18	BKG		0.0600	| | |
7-NOV-2006 05:48	BKG		0.0500	| | |
8-NOV-2006 04:13	BKG		0.0600	| | |
9-NOV-2006 05:55	BKG		0.0300	| | |
10-NOV-2006 06:10	BKG		0.0500	| | |
11-NOV-2006 04:27	BKG		0.0600	| | |
11-NOV-2006 23:41	BKG		0.0400	| | |
12-NOV-2006 21:12	BKG		0.0500	| | |
14-NOV-2006 02:18	BKG		0.0300	| | |
14-NOV-2006 02:18	BKG		0.0400	| | |
14-NOV-2006 20:58	BKG		0.0200	| | |
15-NOV-2006 04:31	BKG		0.5700	|Ac| | R
15-NOV-2006 09:00	BKG		0.0400	| | |
16-NOV-2006 05:47	BKG		0.0400	| | |
17-NOV-2006 04:55	BKG		0.0400	| | |
18-NOV-2006 05:10	BKG		0.0500	| | |
18-NOV-2006 23:31	BKG		0.0300	| | |
19-NOV-2006 22:27	BKG		0.0600	| | |
21-NOV-2006 06:15	BKG		0.0400	| | |
22-NOV-2006 06:07	BKG		0.0400	| | |
23-NOV-2006 04:48	BKG		0.0300	| | |
23-NOV-2006 18:28	BKG		0.0500	| | |
24-NOV-2006 21:43	BKG		0.0500	| | |
26-NOV-2006 01:03	BKG		0.0400	| | |
26-NOV-2006 16:08	BKG		0.0300	| | |
28-NOV-2006 03:51	BKG		0.0500	| | |
29-NOV-2006 03:31	BKG		0.0500	| | |

RADIUM 228

SAMPLE AND QC DATA

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/24/2006 9:04:03 AM

Lot No., Due Date: J6K060215,J6K060216,J6K060219; 12/01/2006

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 6311396; RRA228 Ra-228 by GPC

SDG, Matrix: 32992,32993,32994; FILTER

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

6.0 Comments on any No response:

See NCM. 10-09032

First Level Review Pam Anderson **Date** 11-24-06

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 631396

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?	SMM 11-24-09	✓	
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: See NCM

Second Level Review: Sheryl A. Adam Date: 11-24-09

STL RICHLAND

11/10/2006 3:33:53 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403 Brown and Caldwell Caldwell

Brown & BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #

AnalyDueDate. 11/30/2006

Sep1 DT/Tm Tech: AL 11/12/06 1536

Batch: 6311396 FILTER pCi/sampl PM. Quote: SA . 63174

Sep2 DT/Tm Tech: AL 11/21/06 1331

SEQ Batch, Test: 6311396, BXTE

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JH3LV-1-AD J6K060215-1-SAMP	0.833sa	500.20sa	150.09g,in	0.2499g	RATA24637 10/30/06	lin 31.2	3x50	7A 2019	11/21/06	
			1.0609					7A 0739	11/20/06	
10/18/2006 11:05		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:	
2 JH3L1-1-AD J6K060215-2-SAMP	0.833sa	500.14sa	150.05g,in	0.2499g	RATA24638 10/30/06	31.0		7B 2019	11/21/06	
			1.0470					7B 0739	11/20/06	
10/18/2006 11:30		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:	
3 JH3L3-1-AD J6K060215-3-SAMP	0.833sa	501.73sa	150.08g,in	0.2492g	RATA24639 10/30/06	31.1		7C 2019	11/21/06	
			1.0709					7C 0739	11/20/06	
10/18/2006 11:55		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:	
4 JH3L5-1-AD J6K060215-4-SAMP	501.44sa	502.50sa	150.08g,in	149.7634g	RATA24640 10/30/06	30.8		1B 2019	11/21/06	
			1.0076					1B 0739	11/20/06	
10/18/2006 11:10		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:	

STL Richland Key: in - Initial Amt, f - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1 ISV - Insufficient Volume for Analysis WO Cnt: 4

Richland Wa. pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep: SamplePrep v4.8.24

420

STL RICHLAND

11/10/2006 3:33:53 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403. Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311396 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch. Test: 6311395, BXTE

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
9 JH3ML-1-AD J6K060216-4-SAMP	0.833sa,g	503.05sa,g	150.06g,in	0.2485g 1.1054	RATA24645 11/07/06	lin 30.9	3x50	2C 2016 2C 0739	11/21/06 OK 11/28/06	
10/05/2006 09:55			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
10 JH3MM-1-AD J6K060216-5-SAMP	0.833sa,g	500.03sa,g	150.06g,in	0.25g 0.9905	RATA24646 11/07/06	31.3		2D 2019 2D 0739	11/21/06 OK 11/28/06	
10/05/2006 10:35			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
11 JH3NN-1-AD J6K060219-1-SAMP	0.833sa,g	500.13sa,g	150.13g,in	0.2501g 0.9235	RATA24647 11/07/06	30.7		3A 2019 3A 0739	11/21/06 OK 11/28/06	
10/11/2006 10:55			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:
12 JH3NR-1-AD J6K060219-2-SAMP	0.833sa,g	509.38sa,g	150.47g,in	0.2461g 1.0130	RATA24648 11/07/06	31.1		3B 2019 3B 0739	11/21/06 OK 11/28/06	
10/11/2006 11:10			AmtRec: FILTER	#Containers: 1				Scr:	Alpha:	Beta:

422

STL RICHLAND

11/10/2006 3:33:54 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403, Brown and Caldwell , Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6311396 FILTER pCi/sampl PM, Quote: SA , 63174

SEQ Batch. Test: 6311395, BXTE

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
13 JH3NT-1-AD J6K060219-3-SAMP	0.833sa,g	500.67sa,g	150.26g,in	0.25g 0.9917	RATA24649 11/07/06	30.5	3K5B	3C 2019 3C 0739	11/21/06 00 11/22/06	
10/11/2006 11:35		AmtRec: FILTER		#Containers: 1				Scr:	Alpha:	Beta:
14 JH3NV-1-AD J6K060219-4-SAMP	0.833sa	500.36sa	150.07g,in	0.2498g 0.9931	RATA24650 11/07/06	30.6		3D 2019 3D 0739	11/21/06 00 11/22/06	
10/11/2006 11:00		AmtRec: FILTER		#Containers: 1				Scr:	Alpha:	Beta:
15 JH3NW-1-AD J6K060219-5-SAMP	0.833sa,g	508.75sa,g	150.56g,in	0.2465g 0.9955	RATA24651 11/07/06	26.3		4A 2019 4A 0739	11/21/06 00 11/22/06	
10/11/2006 11:40		AmtRec: FILTER		#Containers: 1				Scr:	Alpha:	Beta:
16 JH5QD-1-AA-B J6K070000-396-BLK		500.12g	150.00g,in	150.00g ~~1.9735~~ 1.0164	RATA24652 11/07/06	30.5		4B 2019 4B 0739	11/21/06 00 11/22/06	
10/18/2006 11:05		AmtRec:		#Containers: 1				Scr:	Alpha:	Beta:

STL RICHLAND

11/10/2006 3:33:54 PM

Sample Preparation/Analysis

BX Ra-226/228 PrpRC5016, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Balance Id:1120373922,1120373922,1120

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

AnalyDueDate: 11/30/2006

Batch: 6311396 pCi/sampl

SEQ Batch Test: None

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, init/Date	Comments:
17JH5QD-1-AC-C J6K070000-396-LCS		500.12g	150.00g,in	150.00g	RASC4247 10/18/06,pd 11/01/01,r					

11/13/06

10/18/2006 11:05 AmtRec: #Containers: 1 Scr: Alpha: Beta:

Comments: Spike & tracer added to blank, no spike added to LCS -AL 11/21/06

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JH3LV1AD-SAMP Constituent List:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:
RA-228DA	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:						

JH5QD1AA-BLK:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:
RA-228DA	RDL:3.10E+00	pCi/sam	LCL:	UCL:	RPD:						

JH5QD1AC-LCS:

Ba-133	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20	Ra-226	RDL:	pCi/sam	LCL:70	UCL:130	RPD:20
RA-228	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20	RA-228DA	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20

JH3LV1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JH5QD1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JH5QD1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

424

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: 10-09032
NCM Initiated By: Pam Anderson
Date Opened: 11/24/2006
Date Closed:

Classification: **Deficiency**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: Ra-228 by GPC
Lot #'s (Sample #'s): J6K060215 (1,2,3,4,5), J6K060216 (1,2,3,4,5), J6K060219 (1,2,3,4,5), J6K070000 (396),
QC Batches: 6311396

Nonconformance: Technician Error
Subcategory: Laboratory error: prep error

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	11/24/2006	The LCS in this batch was added to the blank during the prep procedure. The blank was then recalculated as the LCS. All the samples in the batch are >CRDL and can act as their own blanks. Data accepted.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	11/24/2006	The tech is aware of the error and will be more careful.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

11/22/2006 3:58:32 PM

ICOC Fraction Transfer/Status Report

ByDate 11/22/2005, 11/27/2006, Batch '6311396' User 'ALL' Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
6311396						
AC		CalcC	LongA	11/12/2006 3:46:40		
SC			wagarr	isBatched	11/7/2006 3:29:16 PM	ICOC_RADCALC v4.8.24
SC			LongA	Sep1C	11/12/2006 3:46:40 PM	RICH-RC-5005 REVISION 5
SC			LongA	Sep2C	11/21/2006 4:08:27 PM	RICH-RC-5005 REVISION 4
SC			DAWKINSO	InCnt1	11/21/2006 5:36:52 PM	RICH-RD-0003 REVISION 4
SC			BlackCL	CalcC	11/22/2006 9:46:23 AM	RICH-RD-0003 REVISION 4
AC			LongA	11/21/2006 4:08:27		
AC			DAWKINSO	11/21/2006 5:36:52		
AC			BlackCL	11/22/2006 9:46:23		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.8.18

11/22/2006 3:58:31 PM

Rpt DB Transfer log (Batch Results)

SEVERN TRENT STL

SDG or Batch / Isotope	Rpt Db Id / Method	RTst Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Sample Date / mda	Units	Expected	Yield	Volumes
32992	**9JH3L110**		**J6K0602152**	P-0779	FILTER	11/3/2006 10:00:00	10/18/2006 11:30:00 AM				
ALPHA	BAS7	0	11/20/2006 12:06:48	**7.22E+00**	1.802E+00	1.944E+00	4.272E+00	PCI/SA	1.0	1.0E+0	2.084E-2
RA-228	BXTF	0	11/22/2006 7:42:25	**1.0496E+00**	5.082E-01	5.385E-01	2.351E+00	PCI/SA	0.944	1.0E+0	2.499E-1
TH-228	9NS1	0	11/15/2006 12:20:29	**9.9555E-02**	5.786E-02	5.846E-02	1.589E-01	PCI/SA	1.014	1.0E+0	3.354E-2
TH-230	9NS1	0	11/15/2006 12:20:29	**1.6049E-01**	7.206E-02	7.33E-02	1.537E-01	PCI/SA	1.014	1.0E+0	3.354E-2
TH-232	9NS1	0	11/15/2006 12:20:29	**0.0E+00**	0.0E+00	3.273E-02	1.537E-01	PCI/SA	1.014	1.0E+0	3.354E-2
32992	**9JH3L310**		**J6K0602153**	P-0780	FILTER	11/3/2006 10:00:00	10/18/2006 11:55:00 AM				
ALPHA	BAS7	0	11/20/2006 12:06:48	**3.5037E+00**	1.58E+00	1.622E+00	5.463E+00	PCI/SA	1.0	1.0E+0	2.077E-2
RA-228	BXTF	0	11/22/2006 7:42:25	**1.3253E+00**	5.538E-01	6.082E-01	2.614E+00	PCI/SA	0.968	1.0E+0	2.492E-1
TH-228	9NS1	0	11/15/2006 12:20:45	**1.3289E-01**	9.583E-02	9.661E-02	3.189E-01	PCI/SA	0.827	1.0E+0	3.416E-2
TH-230	9NS1	0	11/15/2006 12:20:45	**4.1132E-01**	1.477E-01	1.524E-01	3.084E-01	PCI/SA	0.827	1.0E+0	3.416E-2
TH-232	9NS1	0	11/15/2006 12:20:45	**5.1415E-02**	5.749E-02	5.768E-02	3.084E-01	PCI/SA	0.827	1.0E+0	3.416E-2
32992	**9JH3L510**		**J6K0602154**	P-0781	FILTER	11/3/2006 10:00:00	10/18/2006 11:10:00 AM				
ALPHA	BAS7	0	11/20/2006 12:06:48	**6.196E+00**	1.781E+00	1.885E+00	5.034E+00	PCI/SA	1.0	1.0E+0	2.077E-2
RA-228	BXTF	0	11/22/2006 7:43:07	**1.6172E+00**	5.507E-01	5.8E-01	2.411E+00	PCI/SA	0.902	1.0E+0	2.488E-1
TH-228	9NS1	0	11/15/2006 12:20:52	**9.3038E-02**	1.186E-01	1.188E-01	5.006E-01	PCI/SA	0.989	1.0E+0	3.413E-2
TH-230	9NS1	0	11/15/2006 12:20:52	**1.7993E-01**	9.273E-02	9.406E-02	2.698E-01	PCI/SA	0.989	1.0E+0	3.413E-2
TH-232	9NS1	0	11/15/2006 12:20:52	**0.0E+00**	0.0E+00	5.029E-02	2.698E-01	PCI/SA	0.989	1.0E+0	3.413E-2
32992	**9JH3L610**		**J6K0602155**	000546	FILTER	11/3/2006 10:00:00	10/18/2006 12:00:00 PM				
ALPHA	BAS7	0	11/20/2006 12:06:48	**4.0391E+00**	1.508E+00	1.564E+00	4.578E+00	PCI/SA	1.0	1.0E+0	2.082E-2
RA-228	BXTF	0	11/22/2006 7:43:07	**1.1306E+00**	4.917E-01	5.183E-01	2.213E+00	PCI/SA	0.943	1.0E+0	2.493E-1
TH-228	9NS1	0	11/15/2006 9:17:45	**1.3445E-01**	9.211E-02	9.287E-02	3.229E-01	PCI/SA	1.043	1.0E+0	3.348E-2
TH-230	9NS1	0	11/15/2006 9:17:45	**5.1997E-01**	1.402E-01	1.475E-01	2.228E-01	PCI/SA	1.043	1.0E+0	3.348E-2
TH-232	9NS1	0	11/15/2006 9:17:45	**1.1142E-01**	6.696E-02	6.767E-02	2.228E-01	PCI/SA	1.043	1.0E+0	3.348E-2
32992	**9JH3LV10**		**J6K0602151**	P-0778	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM				
ALPHA	BAS7	0	11/20/2006 12:06:48	**4.076E+00**	1.681E+00	1.734E+00	5.712E+00	PCI/SA	1.0	1.0E+0	2.088E-2
RA-228	BXTF	0	11/22/2006 7:42:25	**1.5537E+00**	5.771E-01	5.783E-01	2.401E+00	PCI/SA	0.962	1.0E+0	2.499E-1
32993	**9JH3MC10**		**J6K0602161**	P-0769	FILTER	11/3/2006 10:00:00	10/5/2006 9:50:00 AM				
ALPHA	BAS7	0	11/20/2006 2:50:55 PM	**2.6223E+00**	1.517E+00	1.54E+00	5.717E+00	PCI/SA	1.0	1.0E+0	2.086E-2
RA-228	BXTF	0	11/22/2006 7:43:07	**7.8301E-01**	5.606E-01	5.606E-01	2.481E+00	PCI/SA	0.886	1.0E+0	2.5E-1
TH-228	9NS1	0	11/15/2006 9:17:45	**1.3258E-01**	7.809E-02	7.889E-02	2.272E-01	PCI/SA	1.099	1.0E+0	3.329E-2
TH-230	9NS1	0	11/15/2006 9:17:45	**2.7116E-01**	1.038E-01	1.063E-01	2.169E-01	PCI/SA	1.099	1.0E+0	3.329E-2
TH-232	9NS1	0	11/15/2006 9:17:45	**7.2309E-02**	5.423E-02	5.457E-02	2.169E-01	PCI/SA	1.099	1.0E+0	3.329E-2
32993	**9JH3MJ10**		**J6K0602162**	P-0770	FILTER	11/3/2006 10:00:00	10/5/2006 10:10:00 AM				
ALPHA	BAS7	0	11/20/2006 2:50:55 PM	**1.8234E+00**	1.14E+00	1.155E+00	4.252E+00	PCI/SA	1.0	1.0E+0	2.092E-2
RA-228	BXTF	0	11/22/2006 7:43:19	**1.9695E+00**	4.784E-01	4.971E-01	1.799E+00	PCI/SA	0.946	1.0E+0	2.501E-1
TH-228	9NS1	0	11/15/2006 9:17:45	**1.553E-01**	9.147E-02	9.246E-02	2.661E-01	PCI/SA	1.024	1.0E+0	3.393E-2
TH-230	9NS1	0	11/15/2006 9:17:45	**2.5409E-01**	1.059E-01	1.081E-01	2.54E-01	PCI/SA	1.024	1.0E+0	3.393E-2
TH-232	9NS1	0	11/15/2006 9:17:45	**4.2349E-02**	4.735E-02	4.749E-02	2.54E-01	PCI/SA	1.024	1.0E+0	3.393E-2
32993	**9JH3MK10**		**J6K0602163**	P-0771	FILTER	11/3/2006 10:00:00	10/5/2006 10:30:00 AM				
ALPHA	BAS7	0	11/20/2006 2:50:55 PM	**6.1E+00**	1.859E+00	1.959E+00	5.451E+00	PCI/SA	1.0	1.0E+0	2.081E-2
RA-228	BXTF	0	11/22/2006 7:43:19	**1.9269E+00**	4.947E-01	5.185E-01	1.936E+00	PCI/SA	0.865	1.0E+0	2.494E-1
TH-228	9NS1	0	11/15/2006 9:17:45	**6.8692E-02**	6.869E-02	6.894E-02	2.747E-01	PCI/SA	1.114	1.0E+0	3.315E-2
TH-230	9NS1	0	11/15/2006 9:17:45	**3.0596E-01**	1.177E-01	1.206E-01	2.622E-01	PCI/SA	1.114	1.0E+0	3.315E-2
TH-232	9NS1	0	11/15/2006 9:17:45	**4.3708E-02**	4.887E-02	4.901E-02	2.622E-01	PCI/SA	1.114	1.0E+0	3.315E-2
32993	**9JH3ML10**		**J6K0602164**	P-0772	FILTER	11/3/2006 10:00:00	10/5/2006 9:55:00 AM				
ALPHA	BAS7	0	11/20/2006 2:50:55 PM	**4.0912E+00**	1.559E+00	1.612E+00	5.029E+00	PCI/SA	1.0	1.0E+0	2.076E-2
RA-228	BXTF	0	11/22/2006 7:43:19	**2.311E+00**	4.874E-01	5.099E-01	1.755E+00	PCI/SA	0.993	1.0E+0	2.485E-1
TH-228	9NS1	0	11/15/2006 9:17:45	**7.773E-02**	7.271E-02	7.3E-02	2.86E-01	PCI/SA	1.099	1.0E+0	3.281E-2
TH-230	9NS1	0	11/15/2006 9:17:45	**1.8548E-02**	6.151E-02	6.153E-02	3.118E-01	PCI/SA	1.099	1.0E+0	3.281E-2
TH-232	9NS1	0	11/15/2006 9:17:45	**7.4186E-02**	5.564E-02	5.599E-02	2.225E-01	PCI/SA	1.099	1.0E+0	3.281E-2
32993	**9JH3MM10**		**J6K0602165**	000544	FILTER	11/3/2006 10:00:00	10/5/2006 10:35:00 AM				

6311396, **Samples Inserted | Updated | NotUpdated => 1 | 0 | 15,
**Results Inserted | ReTestInserted | Updated | NotInserted => 16 | 0 | 0 | 0.
**Diff RptDb | Qtims =>

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Mda	Sample Date / Units	Expected	Yield	Volumes	
ALPHA	BAS7	0		11/20/2006 2:50:55 PM	**3.2885E+00**	1.411E+00	1.449E+00	4.574E+00	PCI/SA		1.0	1.0E+0	2.087E-2
RA-228	BXTF	0		11/22/2006 7:43:19	**1.9571E+00**	4.752E-01	5.021E-01	1.833E+00	PCI/SA		0.901	1.0E+0	2.5E-1
TH-228	9NS1	0		11/15/2006 9:17:45	**1.8849E-01**	1.088E-01	1.1E-01	3.521E-01	PCI/SA		0.929	1.0E+0	3.33E-2
TH-230	9NS1	0		11/15/2006 9:17:45	**3.9979E-01**	1.356E-01	1.399E-01	2.942E-01	PCI/SA		0.929	1.0E+0	3.33E-2
TH-232	9NS1	0		11/15/2006 9:17:45	**7.9958E-02**	5.997E-02	6.036E-02	2.398E-01	PCI/SA		0.929	1.0E+0	3.33E-2
32994	**9JH3NN10**			**J6K0602191**	P-0773	FILTER	11/3/2006 10:00:00		10/11/2006 10:55:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**4.8082E+00**	1.76E+00	1.826E+00	5.718E+00	PCI/SA		1.0	1.0E+0	2.085E-2
RA-228	BXTF	0		11/22/2006 7:43:32	**8.8239E-01**	4.247E-01	4.319E-01	1.849E+00	PCI/SA		0.826	1.0E+0	2.501E-1
TH-228	9NS1	0		11/15/2006 9:17:45	**6.4106E-02**	6.411E-02	6.434E-02	2.563E-01	PCI/SA		1.068	1.0E+0	3.411E-2
TH-230	9NS1	0		11/15/2006 9:17:45	**1.231E-01**	7.398E-02	7.473E-02	2.461E-01	PCI/SA		1.068	1.0E+0	3.411E-2
TH-232	9NS1	0		11/15/2006 9:17:45	**2.0517E-02**	4.588E-02	4.591E-02	2.461E-01	PCI/SA		1.068	1.0E+0	3.411E-2
32994	**9JH3NR10**			**J6K0602192**	P-0774	FILTER	11/3/2006 10:00:00		10/11/2006 11:10:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**1.8605E+00**	1.163E+00	1.178E+00	4.339E+00	PCI/SA		1.0	1.0E+0	2.051E-2
RA-228	BXTF	0		11/22/2006 7:43:32	**8.4187E-01**	3.952E-01	4.069E-01	1.738E+00	PCI/SA		0.916	1.0E+0	2.461E-1
TH-228	9NS1	0		11/15/2006 9:17:45	**-1.909E-02**	4.269E-02	4.272E-02	2.29E-01	PCI/SA		0.959	1.0E+0	3.183E-2
TH-230	9NS1	0		11/15/2006 9:17:45	**1.833E-02**	4.099E-02	4.102E-02	2.199E-01	PCI/SA		0.959	1.0E+0	3.183E-2
TH-232	9NS1	0		11/15/2006 9:17:45	**3.6659E-02**	4.099E-02	4.11E-02	2.199E-01	PCI/SA		0.959	1.0E+0	3.183E-2
32994	**9JH3NT10**			**J6K0602193**	P-0775	FILTER	11/3/2006 10:00:00		10/11/2006 11:35:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**6.8219E+00**	1.926E+00	2.045E+00	5.434E+00	PCI/SA		1.0	1.0E+0	2.088E-2
RA-228	BXTF	0		11/22/2006 7:43:32	**1.1331E+00**	4.218E-01	4.417E-01	1.806E+00	PCI/SA		0.879	1.0E+0	2.5E-1
TH-228	9NS1	0		11/15/2006 9:18:10	**0.0E+00**	0.0E+00	3.403E-02	1.598E-01	PCI/SA		1.035	1.0E+0	3.37E-2
TH-230	9NS1	0		11/15/2006 9:18:10	**2.8835E-01**	9.633E-02	9.932E-02	1.535E-01	PCI/SA		1.035	1.0E+0	3.37E-2
TH-232	9NS1	0		11/15/2006 9:18:10	**0.0E+00**	0.0E+00	3.267E-02	1.535E-01	PCI/SA		1.035	1.0E+0	3.37E-2
32994	**9JH3NV10**			**J6K0602194**	P-0776	FILTER	11/3/2006 10:00:00		10/11/2006 11:00:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**1.9771E+00**	1.293E+00	1.308E+00	4.988E+00	PCI/SA		1.0	1.0E+0	2.094E-2
RA-228	BXTF	0		11/22/2006 7:43:32	**1.2015E+00**	4.077E-01	4.387E-01	1.76E+00	PCI/SA		0.883	1.0E+0	2.498E-1
TH-228	9NS1	0		11/15/2006 9:18:18	**7.805E-02**	7.805E-02	7.835E-02	3.121E-01	PCI/SA		0.855	1.0E+0	3.379E-2
TH-230	9NS1	0		11/15/2006 9:18:18	**6.9942E-01**	1.886E-01	1.985E-01	2.996E-01	PCI/SA		0.855	1.0E+0	3.379E-2
TH-232	9NS1	0		11/15/2006 9:18:18	**0.0E+00**	0.0E+00	5.585E-02	2.996E-01	PCI/SA		0.855	1.0E+0	3.379E-2
32994	**9JH3NW10**			**J6K0602195**	000545	FILTER	11/3/2006 10:00:00		10/11/2006 11:40:00 AM				
ALPHA	BAS7	0		11/20/2006 5:38:54 PM	**2.1928E+00**	1.269E+00	1.287E+00	4.627E+00	PCI/SA		1.0	1.0E+0	2.061E-2
RA-228	BXTF	0		11/22/2006 7:43:45	**2.1915E-01**	3.632E-01	4.233E-01	2.071E+00	PCI/SA		0.761	1.0E+0	2.465E-1
TH-228	9NS1	0		11/15/2006 9:18:20	**1.4771E-01**	1.348E-01	1.354E-01	5.298E-01	PCI/SA		0.966	1.0E+0	3.2E-2
TH-230	9NS1	0		11/15/2006 9:18:20	**2.3632E-01**	1.083E-01	1.103E-01	2.835E-01	PCI/SA		0.966	1.0E+0	3.2E-2
TH-232	9NS1	0		11/15/2006 9:18:20	**4.7264E-02**	5.284E-02	5.3E-02	2.835E-01	PCI/SA		0.966	1.0E+0	3.2E-2
32992	**JH5QD1CS**			**J6K070000396**	INTRA-LAB CHECK	FILTER	11/3/2006 10:00:00		10/18/2006 11:05:00 AM				
RA-228	BXTF	0	S	11/22/2006 7:43:45	**4.4588E+00**	2.577E-01	3.616E-01	4.353E-01	PCI/SA	5.0391E+00	0.901	1.0E+0	1.0E+0

6311396, **Samples Inserted | Updated | NotUpdated => 1 | 0 | 15.
**Results Inserted | ReTestInserted | Updated | NotInserted => 16 | 0 | 0 | 0.
**Diff RptDb | Qtims => .

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC , Results

11/22/2006 2:04:01 PM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Ra-228 by GPC				Ra-226/Ra-228 Deem With Out Blk Subt.										
Calc	TF	FILTER	JH3LV1AD	RA-228	1.36E+00	(8.87E-01)	U4	PCI/SA	R	1.71E+00	3.73E+00		96%	
Calc	TF	FILTER	JH3LV1AD	RA-228	4.71E-01	(9.01E-01)	U4	PCI/SA	R	1.90E+00	4.14E+00		96%	
Calc	TF	FILTER	JH3LV1AD	RA-228	2.83E+00	(1.19E+00)		PCI/SA	R	2.10E+00	4.60E+00		96%	
Calc	TF	FILTER	JH3LV1AD	RA-228	1.55E+00	(5.78E-01)		PCI/SA	A	1.10E+00	2.40E+00		96%	
Calc	TF	FILTER	JH3LV1AD	RA-228	2.18E+00	(3.72E+00)	U4	PCI/SA	R	7.68E+00	1.68E+01		96%	
Calc	TF	FILTER	JH3L11AD	RA-228	1.91E+00	(9.18E-01)		PCI/SA	R	1.67E+00	3.66E+00		94%	
Calc	TF	FILTER	JH3L11AD	RA-228	7.95E-01	(9.08E-01)	U4	PCI/SA	R	1.85E+00	4.06E+00		94%	
Calc	TF	FILTER	JH3L11AD	RA-228	4.41E-01	(9.71E-01)	U4	PCI/SA	R	2.05E+00	4.50E+00		94%	
Calc	TF	FILTER	JH3L11AD	RA-228	1.05E+00	(5.38E-01)		PCI/SA	A	1.07E+00	2.35E+00		94%	
Calc	TF	FILTER	JH3L11AD	RA-228	3.12E+00	(3.66E+00)	U4	PCI/SA	R	7.37E+00	1.62E+01		94%	
Calc	TF	FILTER	JH3L31AD	RA-228	3.10E+00	(1.10E+00)		PCI/SA	R	1.87E+00	4.07E+00		97%	
Calc	TF	FILTER	JH3L31AD	RA-228	9.88E-01	(1.02E+00)	U4	PCI/SA	R	2.07E+00	4.51E+00		97%	
Calc	TF	FILTER	JH3L31AD	RA-228	-1.13E-01	(1.04E+00)	U4	PCI/SA	R	2.30E+00	5.01E+00		97%	
Calc	TF	FILTER	JH3L31AD	RA-228	1.33E+00	(6.08E-01)		PCI/SA	A	1.20E+00	2.61E+00		97%	
Calc	TF	FILTER	JH3L31AD	RA-228	-4.60E-01	(3.93E+00)	U4	PCI/SA	R	8.55E+00	1.86E+01		97%	
Calc	TF	FILTER	JH3L51AD	RA-228	2.80E+00	(1.02E+00)		PCI/SA	R	1.70E+00	3.75E+00		90%	
Calc	TF	FILTER	JH3L51AD	RA-228	8.22E-01	(9.30E-01)	U4	PCI/SA	R	1.89E+00	4.16E+00		90%	
Calc	TF	FILTER	JH3L51AD	RA-228	1.23E+00	(1.06E+00)	U4	PCI/SA	R	2.09E+00	4.62E+00		90%	
Calc	TF	FILTER	JH3L51AD	RA-228	1.62E+00	(5.80E-01)		PCI/SA	A	1.09E+00	2.41E+00		90%	
Calc	TF	FILTER	JH3L51AD	RA-228	2.16E+00	(3.55E+00)	U4	PCI/SA	R	7.37E+00	1.63E+01		90%	
Calc	TF	FILTER	JH3L61AD	RA-228	2.35E+00	(9.26E-01)		PCI/SA	R	1.55E+00	3.44E+00		94%	
Calc	TF	FILTER	JH3L61AD	RA-228	-3.13E-01	(7.57E-01)	U4	PCI/SA	R	1.72E+00	3.82E+00		94%	
Calc	TF	FILTER	JH3L61AD	RA-228	1.35E+00	(9.94E-01)	U4	PCI/SA	R	1.91E+00	4.24E+00		94%	
Calc	TF	FILTER	JH3L61AD	RA-228	1.13E+00	(5.18E-01)		PCI/SA	A	9.98E-01	2.21E+00		94%	
Calc	TF	FILTER	JH3L61AD	RA-228	6.31E-01	(3.09E+00)	U4	PCI/SA	R	6.64E+00	1.48E+01		94%	
Calc	TF	FILTER	JH3MC1AD	RA-228	-7.87E-01	(7.36E-01)	U4	PCI/SA	R	1.75E+00	3.86E+00		89%	
Calc	TF	FILTER	JH3MC1AD	RA-228	2.33E+00	(1.09E+00)		PCI/SA	R	1.95E+00	4.28E+00		89%	
Calc	TF	FILTER	JH3MC1AD	RA-228	8.07E-01	(1.05E+00)	U4	PCI/SA	R	2.16E+00	4.75E+00		89%	
Calc	TF	FILTER	JH3MC1AD	RA-228	7.83E-01	(5.61E-01)	U4	PCI/SA	A	1.13E+00	2.48E+00		89%	
Calc	TF	FILTER	JH3MC1AD	RA-228	-1.61E+00	(3.07E+00)	U4	PCI/SA	R	7.06E+00	1.57E+01		89%	
Calc	TF	FILTER	JH3MJ1AD	RA-228	2.44E+00	(8.50E-01)		PCI/SA	R	1.20E+00	2.80E+00		95%	
Calc	TF	FILTER	JH3MJ1AD	RA-228	1.21E+00	(7.63E-01)	U4	PCI/SA	R	1.33E+00	3.11E+00		95%	
Calc	TF	FILTER	JH3MJ1AD	RA-228	2.26E+00	(9.59E-01)		PCI/SA	R	1.47E+00	3.44E+00		95%	
Calc	TF	FILTER	JH3MJ1AD	RA-228	1.97E+00	(4.97E-01)		PCI/SA	A	7.69E-01	1.80E+00		95%	
Calc	TF	FILTER	JH3MJ1AD	RA-228	1.34E+00	(2.44E+00)	U4	PCI/SA	R	4.93E+00	1.17E+01		95%	
Calc	TF	FILTER	JH3MK1AD	RA-228	2.94E+00	(9.47E-01)		PCI/SA	R	1.29E+00	3.01E+00		87%	
Calc	TF	FILTER	JH3MK1AD	RA-228	1.16E+00	(8.03E-01)	U4	PCI/SA	R	1.43E+00	3.34E+00		87%	
Calc	TF	FILTER	JH3MK1AD	RA-228	1.68E+00	(9.38E-01)		PCI/SA	R	1.59E+00	3.71E+00		87%	

() - (1s Uncertainities)
IDC - Instrument Detection Level in Conc Units
MLcC- Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:39
RADCALC v4.8.24
STL Richland

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	TF	FILTER	JH3MK1AD	RA-228	1.93E+00	(5.19E-01)		PCI/SA	A	8.31E-01	1.94E+00		87%	
Calc	TF	FILTER	JH3MK1AD	RA-228	3.79E+00	(2.86E+00)	U4	PCI/SA	R	5.09E+00	1.21E+01		87%	
Calc	TF	FILTER	JH3ML1AD	RA-228	2.81E+00	(8.74E-01)		PCI/SA	R	1.17E+00	2.73E+00		99%	
Calc	TF	FILTER	JH3ML1AD	RA-228	1.37E+00	(7.66E-01)		PCI/SA	R	1.30E+00	3.03E+00		99%	
Calc	TF	FILTER	JH3ML1AD	RA-228	2.75E+00	(9.95E-01)		PCI/SA	R	1.44E+00	3.36E+00		99%	
Calc	TF	FILTER	JH3ML1AD	RA-228	2.31E+00	(5.10E-01)		PCI/SA	A	7.53E-01	1.75E+00		99%	
Calc	TF	FILTER	JH3ML1AD	RA-228	1.92E+00	(2.69E+00)	U4	PCI/SA	R	5.36E+00	1.25E+01		99%	
Calc	TF	FILTER	JH3MM1AD	RA-228	3.16E+00	(9.47E-01)		PCI/SA	R	1.22E+00	2.85E+00		90%	
Calc	TF	FILTER	JH3MM1AD	RA-228	1.28E+00	(7.84E-01)	U4	PCI/SA	R	1.35E+00	3.16E+00		90%	
Calc	TF	FILTER	JH3MM1AD	RA-228	1.42E+00	(8.70E-01)	U4	PCI/SA	R	1.50E+00	3.51E+00		90%	
Calc	TF	FILTER	JH3MM1AD	RA-228	1.96E+00	(5.02E-01)		PCI/SA	A	7.82E-01	1.83E+00		90%	
Calc	TF	FILTER	JH3MM1AD	RA-228	-4.31E-01	(2.43E+00)	U4	PCI/SA	R	5.47E+00	1.28E+01		90%	
Calc	TF	FILTER	JH3NN1AD	RA-228	6.34E-01	(6.47E-01)	U4	PCI/SA	R	1.22E+00	2.88E+00		83%	
Calc	TF	FILTER	JH3NN1AD	RA-228	1.23E+00	(7.91E-01)	U4	PCI/SA	R	1.36E+00	3.19E+00		83%	
Calc	TF	FILTER	JH3NN1AD	RA-228	7.81E-01	(7.97E-01)	U4	PCI/SA	R	1.51E+00	3.54E+00		83%	
Calc	TF	FILTER	JH3NN1AD	RA-228	8.82E-01	(4.32E-01)		PCI/SA	A	7.87E-01	1.85E+00		83%	
Calc	TF	FILTER	JH3NN1AD	RA-228	1.89E+00	(2.83E+00)	U4	PCI/SA	R	5.54E+00	1.30E+01		83%	
Calc	TF	FILTER	JH3NR1AD	RA-228	8.12E-01	(6.39E-01)	U4	PCI/SA	R	1.16E+00	2.70E+00		92%	
Calc	TF	FILTER	JH3NR1AD	RA-228	1.05E+00	(7.30E-01)	U4	PCI/SA	R	1.29E+00	3.00E+00		92%	
Calc	TF	FILTER	JH3NR1AD	RA-228	6.59E-01	(7.41E-01)	U4	PCI/SA	R	1.43E+00	3.33E+00		92%	
Calc	TF	FILTER	JH3NR1AD	RA-228	8.42E-01	(4.07E-01)		PCI/SA	A	7.49E-01	1.74E+00		92%	
Calc	TF	FILTER	JH3NR1AD	RA-228	-2.20E+00	(2.28E+00)	U4	PCI/SA	R	5.48E+00	1.26E+01		92%	
Calc	TF	FILTER	JH3NT1AD	RA-228	1.59E+00	(7.64E-01)		PCI/SA	R	1.20E+00	2.81E+00		88%	
Calc	TF	FILTER	JH3NT1AD	RA-228	9.44E-01	(7.37E-01)	U4	PCI/SA	R	1.34E+00	3.12E+00		88%	
Calc	TF	FILTER	JH3NT1AD	RA-228	8.65E-01	(7.93E-01)	U4	PCI/SA	R	1.48E+00	3.46E+00		88%	
Calc	TF	FILTER	JH3NT1AD	RA-228	1.13E+00	(4.42E-01)		PCI/SA	A	7.74E-01	1.81E+00		88%	
Calc	TF	FILTER	JH3NT1AD	RA-228	-5.53E+00	(2.17E+00)	U4	PCI/SA	R	6.02E+00	1.38E+01		88%	
Calc	TF	FILTER	JH3NV1AD	RA-228	2.24E+00	(8.37E-01)		PCI/SA	R	1.18E+00	2.74E+00		88%	
Calc	TF	FILTER	JH3NV1AD	RA-228	8.96E-01	(7.15E-01)	U4	PCI/SA	R	1.30E+00	3.04E+00		88%	
Calc	TF	FILTER	JH3NV1AD	RA-228	4.64E-01	(7.22E-01)	U4	PCI/SA	R	1.45E+00	3.37E+00		88%	
Calc	TF	FILTER	JH3NV1AD	RA-228	1.20E+00	(4.39E-01)		PCI/SA	A	7.56E-01	1.76E+00		88%	
Calc	TF	FILTER	JH3NV1AD	RA-228	2.56E+00	(2.65E+00)	U4	PCI/SA	R	4.95E+00	1.16E+01		88%	
Calc	TF	FILTER	JH3NW1AD	RA-228	1.07E+00	(7.68E-01)	U4	PCI/SA	R	1.38E+00	3.22E+00		76%	
Calc	TF	FILTER	JH3NW1AD	RA-228	-4.88E-01	(6.34E-01)	U4	PCI/SA	R	1.54E+00	3.57E+00		76%	
Calc	TF	FILTER	JH3NW1AD	RA-228	7.73E-02	(7.87E-01)	U4	PCI/SA	R	1.70E+00	3.97E+00		76%	
Calc	TF	FILTER	JH3NW1AD	RA-228	2.19E-01	(4.23E-01)	U4	PCI/SA	A	8.90E-01	2.07E+00		76%	
Calc	TF	FILTER	JH3NW1AD	RA-228	-2.33E+00	(2.90E+00)	U4	PCI/SA	R	6.98E+00	1.60E+01		76%	
Calc	TF	FILTER	JH5QD1AC	RA-228	4.13E+00	(5.71E-01)		PCI/SA	R	2.90E-01	6.77E-01	S	90%	82%
Calc	TF	FILTER	JH5QD1AC	RA-228	3.95E+00	(5.70E-01)		PCI/SA	R	3.22E-01	7.51E-01	S	90%	78%

() - (1s Uncertainties)
IDC - Instrument Detection Level in Conc Units
MLcC - Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc - 1.645*TPU
All Results Displayed to Three Digits Regardless of Significants
Date/Time - mm/dd/yy hh mm, 24hr Time

RecCnt:78
RADCALC v4.8.24
STL Richland

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC , Results

11/22/2006 2:04:01 PM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Calc	TF	FILTER	**JH5QD1AC**	RA-228	**5.30E+00**	**(7.25E-01)**		PCI/SA	R	3.57E-01	8.33E-01	**S**	90%	105%
Calc	TF	FILTER	**JH5QD1AC**	RA-228	**4.46E+00**	**(3.62E-01)**		PCI/SA	A	1.87E-01	4.35E-01	**S**	90%	88%
Calc	TF	FILTER	**JH5QD1AC**	RA-228	**4.95E+00**	**(1.20E+00)**		PCI/SA	R	1.43E+00	3.28E+00	**S**	90%	98%

Plenderson
11-2-2006

spike added to blank

() (1s Uncertainities)
IDC Instrument Detection Level in Conc Units
MLcC Method Decision Level in Conc Units
MDC Minimum Detectable Concentration
*Std Lc, MDC rising StdDev for Set of Blanks

Q Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Reguardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt 80
RADCALC v4.8.24
STL Richland

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC , Calculated Results

11/22/2006 2:04:02 PM

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
10	Calc	TF	FILTER	*STLE	Ra228WoBS	JH3MM1AD	PCI/SA		10/05/06 10:35	11/22/06 07:43	11/12/06 15:36	RATA24646	1	1.00 SA	
536403,000544					J6K060216-5 v4.8.24		FILTER			31.3	11/21/06 13:31	RATA24646 Alq	99%	0.249985 SA	

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	11/21/06 18:26	RA-228	32	92	GPC2D	1	N	N	4.3763E-01	1.0000E+00	N	90%	N		1.6676E+00	4.5045E-01	1.0127E+00	
			50	400			Y		(1.308E-02)	(0.000E+00)		7%			(0.000E+00)	4.000241		
1	11/21/06 19:21	RA-228	19	92	GPC2D	1	N	N	4.3763E-01	1.0000E+00	N	90%	N		1.8500E+00	4.5045E-01	1.0127E+00	
			50	400			Y		(1.308E-02)	(0.000E+00)		7%			(0.000E+00)	4.000241		
2	11/21/06 20:17	RA-228	19	92	GPC2D	1	N	N	4.3763E-01	1.0000E+00	N	90%	N		2.0523E+00	4.5045E-01	1.0127E+00	
			50	400			Y		(1.308E-02)	(0.000E+00)		7%			(0.000E+00)	4.000241		
3	11/22/06 07:43	RA-228	11	93	GPC2D	1	N	N	4.3763E-01	1.0000E+00	N	90%	N		7.4468E+00	4.5045E-01	1.0127E+00	
			50	400			N		(1.308E-02)	(0.000E+00)		7%			(0.000E+00)	4.000241		

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
	11/22/06	RA-228	R	**3.163182**		4.10000E-01	1.733502	1.733502	1.00 SA	90%		2.851325		
				(0.946627)		(1.1565E-01)	(0.510895)	(0.510895)	(0.014142)			1.217307		
	11/22/06	RA-228	R	**1.283861**	U4	1.50000E-01	0.703588	0.703588	1.00 SA	90%		3.163248		
				(0.784445)		(9.0416E-02)	(0.428338)	(0.428338)	(0.014142)			1.350475		
	11/22/06	RA-228	R	**1.424265**	U4	1.50000E-01	0.780533	0.780533	1.00 SA	90%		3.509185		
				(0.870233)		(9.0416E-02)	(0.475181)	(0.475181)	(0.014142)			1.498165		
	11/22/06	RA-228	A	**1.957103**		2.36667E-01	1.072541	1.072541	1.00 SA	90%		1.832848		
				(0.50208)		(5.7470E-02)	(0.272903)	(0.272903)	(0.008165)			0.782492		
	11/22/06	RA-228	R	**-0.430655**	U4	-1.25000E-02	-0.23601	-0.23601	1.00 SA	90%		12.791759		
				(2.431963)		(7.0578E-02)	(1.332719)	(1.332719)	(0.014142)			5.465464		

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
11	Calc	TF	FILTER	*STLE	Ra228WoBS	JH3NN1AD	PCI/SA		10/11/06 10:55	11/22/06 07:43	11/12/06 15:36	RATA24647	1	1.00 SA	
536403,P-0773					J6K060219-1 v4.8.24		FILTER			30.7	11/21/06 13:31	RATA24647 Alq	93%	0.250052 SA	

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	11/21/06 18:27	RA-228	15	88	GPC3A	1	N	N	4.6416E-01	1.0000E+00	N	83%	N		1.6691E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.127E-02)	(0.000E+00)		7%			(0.000E+00)	3.999175		
1	11/21/06 19:22	RA-228	18	88	GPC3A	1	N	N	4.6416E-01	1.0000E+00	N	83%	N		1.8517E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.127E-02)	(0.000E+00)		7%			(0.000E+00)	3.999175		
2	11/21/06 20:17	RA-228	15	88	GPC3A	1	N	N	4.6416E-01	1.0000E+00	N	83%	N		2.0543E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.127E-02)	(0.000E+00)		7%			(0.000E+00)	3.999175		
3	11/22/06 07:43	RA-228	14	70	GPC3A	1	N	N	4.6416E-01	1.0000E+00	N	83%	N		7.4499E+00	4.5045E-01	1.0107E+00	
			50	309			N		(4.127E-02)	(0.000E+00)		7%			(0.000E+00)	3.999175		

() (1s Uncertainties), Q Qualifier, U Results Less Than Lc = 1.645 * TPU

RecCnt:11 RADCALC v4.8.24

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 Significant Date/Time - mm/dd/yy hh mm, 24hr Time

STL Richland

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC , Calculated Results

11/22/2006 2:04:03 PM

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
	11/22/06	RA-228	R	0.634476	U4	8.00000E-02	0.348491	0.348491	1.00 SA	83%		2.876128		
				(0.647179)		(8.0932E-02)	(0.355006)	(0.355006)	(0.014142)			1.223862		
	11/22/06	RA-228	R	1.231799	U4	1.40000E-01	0.676575	0.676575	1.00 SA	83%		3.190764		
				(0.791054)		(8.8034E-02)	(0.433068)	(0.433068)	(0.014142)			1.357747		
	11/22/06	RA-228	R	0.780887	U4	8.00000E-02	0.428908	0.428908	1.00 SA	83%		3.53982		
				(0.796521)		(8.0932E-02)	(0.436927)	(0.436927)	(0.014142)			1.506279		
	11/22/06	RA-228	A	0.882387		1.00000E-01	0.484658	0.484658	1.00 SA	83%		1.848812		
				(0.431927)		(4.8132E-02)	(0.236757)	(0.236757)	(0.008165)			0.786714		
	11/22/06	RA-228	R	1.892512	U4	5.34628E-02	1.039477	1.039477	1.00 SA	83%		12.998225		
				(2.82785)		(7.9581E-02)	(1.55228)	(1.55228)	(0.014142)			5.5431		

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
12	Calc	TF	FILTER	*STLE	Ra228WoBS	JH3NR1AD	PCI/SA		10/11/06 11:10	11/22/06 07:43	11/12/06 15:36	RATA24648	1	1.00 SA	
536403,P-0774					J6K060219-2 v4.8.24		FILTER			31.1	11/21/06 13:31	RATA24648 Alq	101%	0.246067 SA	

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	11/21/06 18:27	RA-228	19	105	GPC3B	1	N	N	4.8788E-01	1.0000E+00	N	92%	N		1.6691E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(5.450E-02)	(0.000E+00)		7%			(0.000E+00)	4.063937		
1	11/21/06 19:22	RA-228	20	105	GPC3B	1	N	N	4.8788E-01	1.0000E+00	N	92%	N		1.8517E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(5.450E-02)	(0.000E+00)		7%			(0.000E+00)	4.063937		
2	11/21/06 20:17	RA-228	17	105	GPC3B	1	N	N	4.8788E-01	1.0000E+00	N	92%	N		2.0543E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(5.450E-02)	(0.000E+00)		7%			(0.000E+00)	4.063937		
3	11/22/06 07:43	RA-228	11	90	GPC3B	1	N	N	4.8788E-01	1.0000E+00	N	92%	N		7.4499E+00	4.5045E-01	1.0107E+00	
			50	309			N		(5.450E-02)	(0.000E+00)		7%			(0.000E+00)	4.063937		

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
	11/22/06	RA-228	R	0.812087	U4	1.17500E-01	0.438939	0.438939	1.00 SA	92%		2.703211		
				(0.639224)		(9.0864E-02)	(0.344752)	(0.344752)	(0.014142)			1.164999		
	11/22/06	RA-228	R	1.054276	U4	1.37500E-01	0.569843	0.569843	1.00 SA	92%		2.998931		
				(0.729988)		(9.3039E-02)	(0.393451)	(0.393451)	(0.014142)			1.292445		
	11/22/06	RA-228	R	0.659234	U4	7.75000E-02	0.356321	0.356321	1.00 SA	92%		3.327002		
				(0.740867)		(8.6350E-02)	(0.400015)	(0.400015)	(0.014142)			1.433833		
	11/22/06	RA-228	A	0.841866		1.10833E-01	0.455034	0.455034	1.00 SA	92%		1.73766		
				(0.406936)		(5.2035E-02)	(0.219512)	(0.219512)	(0.008165)			0.748877		
	11/22/06	RA-228	R	-2.198294	U4	-7.12621E-02	-1.188193	-1.188193	1.00 SA	92%		12.620012		
				(2.277779)		(7.3093E-02)	(1.229606)	(1.229606)	(0.014142)			5.477278		

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

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

RecCnt:13

RADCALC v4.8.24

STL Richland

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC , Calculated Results

11/22/2006 2:04:03 PM

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
13	Calc	TF	FILTER	*STLE	Ra228WoBS	JH3NT1AD	PCI/SA		10/11/06 11:35	11/22/06 07:43	11/12/06 15:36	RATA24649	1	1.00 SA	
536403,P-0775					J6K060219-3 v4.8.24		FILTER			30.5	11/21/06 13:31	RATA24649 Alq	99%	0.249996 SA	

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	11/21/06 18:27	RA-228	23	98	GPC3C	1	N	N	4.6730E-01	1.0000E+00	N	88%	N		1.6691E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.595E-02)	(0.000E+00)		7%			(0.000E+00)	4.000029		
1	11/21/06 19:22	RA-228	18	98	GPC3C	1	N	N	4.6730E-01	1.0000E+00	N	88%	N		1.8517E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.595E-02)	(0.000E+00)		7%			(0.000E+00)	4.000029		
2	11/21/06 20:17	RA-228	17	98	GPC3C	1	N	N	4.6730E-01	1.0000E+00	N	88%	N		2.0543E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.595E-02)	(0.000E+00)		7%			(0.000E+00)	4.000029		
3	11/22/06 07:43	RA-228	7	95	GPC3C	1	N	N	4.6730E-01	1.0000E+00	N	88%	N		7.4499E+00	4.5045E-01	1.0107E+00	
			50	309			N		(4.595E-02)	(0.000E+00)		7%			(0.000E+00)	4.000029		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	11/22/06	RA-228	R	**1.590461**		2.15000E-01	0.873395	0.873395	1.00 SA	88%		2.808826		
				(0.764493)		(9.9058E-02)	(0.417358)	(0.417358)	(0.014142)			1.204657		
	11/22/06	RA-228	R	**0.943776**	U4	1.15000E-01	0.51827	0.51827	1.00 SA	88%		3.116102		
				(0.736815)		(8.8388E-02)	(0.403722)	(0.403722)	(0.014142)			1.336442		
	11/22/06	RA-228	R	**0.86493**	U4	9.50000E-02	0.474973	0.474973	1.00 SA	88%		3.45699		
				(0.792769)		(8.6096E-02)	(0.434646)	(0.434646)	(0.014142)			1.482643		
	11/22/06	RA-228	A	**1.133056**		1.41667E-01	0.622213	0.622213	1.00 SA	88%		1.805551		
				(0.441692)		(5.2744E-02)	(0.241775)	(0.241775)	(0.008165)			0.774369		
	11/22/06	RA-228	R	**-5.52859**	U4	-1.67443E-01	-3.036001	-3.036001	1.00 SA	88%		13.828738		
				(2.170455)		(6.1603E-02)	(1.18141)	(1.18141)	(0.014142)			6.023167		

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
14	Calc	TF	FILTER	*STLE	Ra228WoBS	JH3NV1AD	PCI/SA		10/11/06 11:00	11/22/06 07:43	11/12/06 15:36	RATA24650	1	1.00 SA	
536403,P-0776					J6K060219-4 v4.8.24		FILTER			30.6	11/21/06 13:31	RATA24650 Alq	99%	0.249837 SA	

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	11/21/06 18:27	RA-228	28	99	GPC3D	1	N	N	4.7942E-01	1.0000E+00	N	88%	N		1.6691E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.533E-02)	(0.000E+00)		7%			(0.000E+00)	4.002614		
1	11/21/06 19:22	RA-228	18	99	GPC3D	1	N	N	4.7942E-01	1.0000E+00	N	88%	N		1.8517E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.533E-02)	(0.000E+00)		7%			(0.000E+00)	4.002614		
2	11/21/06 20:17	RA-228	15	99	GPC3D	1	N	N	4.7942E-01	1.0000E+00	N	88%	N		2.0543E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(4.533E-02)	(0.000E+00)		7%			(0.000E+00)	4.002614		
3	11/22/06 07:43	RA-228	15	68	GPC3D	1	N	N	4.7942E-01	1.0000E+00	N	88%	N		7.4499E+00	4.5045E-01	1.0107E+00	
			50	309			N		(4.533E-02)	(0.000E+00)		7%			(0.000E+00)	4.002614		

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

RecCnt:14 RADCALC v4.8.24

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

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC , Calculated Results

11/22/2006 2:04:03 PM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LoC	BlkLoC/MDC	StdDv/MdC/LoC
	11/22/06	RA-228	R	2.244174		3.12500E-01	1.231573	1.231573	1.00 SA	88%		2.738668		
				(0.836886)		(1.0871E-01)	(0.454792)	(0.454792)	(0.014142)			1.175412		
	11/22/06	RA-228	R	0.896284	U4	1.12500E-01	0.491869	0.491869	1.00 SA	88%		3.038255		
				(0.714681)		(8.8424E-02)	(0.391374)	(0.391374)	(0.014142)			1.303997		
	11/22/06	RA-228	R	0.464022	U4	5.25000E-02	0.254649	0.254649	1.00 SA	88%		3.370628		
				(0.72176)		(8.1356E-02)	(0.395871)	(0.395871)	(0.014142)			1.446649		
	11/22/06	RA-228	A	1.201494		1.59167E-01	0.659364	0.659364	1.00 SA	88%		1.760445		
				(0.438696)		(5.4013E-02)	(0.239612)	(0.239612)	(0.008165)			0.75557		
	11/22/06	RA-228	R	2.562164	U4	7.99353E-02	1.406081	1.406081	1.00 SA	88%		11.625344		
				(2.648489)		(8.1928E-02)	(1.451618)	(1.451618)	(0.014142)			4.946974		

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/Assay Vol	Final/Count Vol
15	Calc	TF	FILTER	*STLE	Ra228WoBS	JH3NW1AD	PCI/SA		10/11/06 11:40	11/22/06 07:43	11/12/06 15:36	RATA24651	1	1.00 SA	
536403,000545					J6K060219-5 v4.8.24		FILTER			26.3	11/21/06 13:31	RATA24651 Alq	100%	0.24651 SA	

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/Vol Adj	Decay	Abn
0	11/21/06 18:28	RA-228	19	101	GPC4A	1	N	N	4.8439E-01	1.0000E+00	N	76%	N		1.6723E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(2.054E-02)	(0.000E+00)		6%			(0.000E+00)	4.056484		
1	11/21/06 19:23	RA-228	16	101	GPC4A	1	N	N	4.8439E-01	1.0000E+00	N	76%	N		1.8552E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(2.054E-02)	(0.000E+00)		6%			(0.000E+00)	4.056484		
2	11/21/06 20:18	RA-228	13	101	GPC4A	1	N	N	4.8439E-01	1.0000E+00	N	76%	N		2.0581E+00	4.5045E-01	1.0107E+00	
			50	400			Y		(2.054E-02)	(0.000E+00)		6%			(0.000E+00)	4.056484		
3	11/22/06 07:49	RA-228	19	129	GPC4A	1	N	N	4.8439E-01	1.0000E+00	N	76%	N		7.4529E+00	4.5045E-01	1.0107E+00	
			50	400			N		(2.054E-02)	(0.000E+00)		6%			(0.000E+00)	4.056484		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LoC	BlkLoC/MDC	StdDv/MdC/LoC
	11/22/06	RA-228	R	1.068024	U4	1.27500E-01	0.578339	0.578339	1.00 SA	76%		3.222035		
				(0.768118)		(9.0726E-02)	(0.414852)	(0.414852)	(0.014142)			1.384803		
	11/22/06	RA-228	R	-0.487884	U4	-5.25000E-02	0.264191	-0.264191	1.00 SA	76%		3.574513		
				(0.634469)		(6.8053E-02)	(0.343293)	(0.343293)	(0.014142)			1.536327		
	11/22/06	RA-228	R	0.07732	U4	7.50000E-03	0.041869	0.041869	1.00 SA	76%		3.965425		
				(0.787288)		(7.6363E-02)	(0.426314)	(0.426314)	(0.014142)			1.704342		
	11/22/06	RA-228	A	0.219153	U4	2.75000E-02	0.118672	0.118672	1.00 SA	76%		2.071143		
				(0.423265)		(4.5575E-02)	(0.228934)	(0.228934)	(0.008165)			0.890178		
	11/22/06	RA-228	R	-2.333316	U4	-6.25000E-02	-1.263499	-1.263499	1.00 SA	76%		15.965492		
				(2.903548)		(7.7500E-02)	(1.57091)	(1.57091)	(0.014142)			6.975162		

() - (1's Uncertainties), Q - Qualifier, U Result is Less Than LoC = 1.645 * TPU
IDC - Instrument Detection Level in Conc Units, MDC - 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 normal, 24hr Time

RecCnt:16 RADCALC v4.8.24
STL Richland

Batch Nbr: 6311396

Alpha Beta, Ra-228 by GPC . Calculated Results

11/22/2006 2:04:03 PM

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/Aliqu Vol	Final/Count Vol
16	Calc	TF	FILTER	*STLE	Ra228WoBS	JH5QD1AC	PCI/SA	S	10/18/06 11:05	11/22/06 07:43	11/12/06 15:36	RASC4247	1	1.00 SA	
0	INTRA-LAB BLANK				J6K070000-396		FILTER			30.5	11/21/06 13:31	RATA24652 Alq	102%	1.00 SA	

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	11/21/06 18:28	RA-228	128	98	GPC4B	1	N	N	4.7251E-01	1.0000E+00	N	90%	N		1.6723E+00	4.5045E-01	1.0083E+00	
			50	400			Y		(9.015E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		
1	11/21/06 19:23	RA-228	112	98	GPC4B	1	N	N	4.7251E-01	1.0000E+00	N	90%	N		1.8552E+00	4.5045E-01	1.0083E+00	
			50	400			Y		(9.015E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		
2	11/21/06 20:18	RA-228	133	98	GPC4B	1	N	N	4.7251E-01	1.0000E+00	N	90%	N		2.0581E+00	4.5045E-01	1.0083E+00	
			50	400			Y		(9.015E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		
3	11/22/06 07:43	RA-228	46	119	GPC4B	1	N	N	4.7251E-01	1.0000E+00	N	90%	N		7.4529E+00	4.5045E-01	1.0083E+00	
			50	400			N		(9.015E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	11/22/06	RA-228	R	**4.128617**		2.31500E+00	9.089792	9.089792	1.00 SA	90%	82%	0.677165		
				(0.571063)		(2.2762E-01)	(1.165195)	(1.165195)	(0.014142)			0.290424		
	11/22/06	RA-228	R	**3.947144**		1.99500E+00	8.690252	8.690252	1.00 SA	90%	78%	0.751243		
				(0.570279)		(2.1310E-01)	(1.171546)	(1.171546)	(0.014142)			0.322195		
	11/22/06	RA-228	R	**5.300663**		2.41500E+00	11.670232	11.670232	1.00 SA	90%	105%	0.8334		
				(0.724676)		(2.3198E-01)	(1.475756)	(1.475756)	(0.014142)			0.357431		
	11/22/06	RA-228	A	**4.458808**		2.24167E+00	9.816759	9.816759	1.00 SA	90%	88%	0.435285		
				(0.361553)		(1.2955E-01)	(0.738471)	(0.738471)	(0.008165)			0.186686		
	11/22/06	RA-228	R	**4.947842**		6.22500E-01	10.893442	10.893442	1.00 SA	90%	98%	3.281739		
				(1.200466)		(1.3836E-01)	(2.581688)	(2.581688)	(0.014142)			1.426316		

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

RecCnt:16 RADCALC V4.3.24
STL Richland

RADIUM 228

STANDARDS AND TRACEABILITY

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date		Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	RA22806A000			Rel. 12/15/2003		4.48817E-02	+		DPM/G		
RASC4247	RA-228	1.1214E+01	±	4.506E-02	DPM	0.0352	g	10/18/2006	10/18/2006	Amisotn	3.1859E+02	± 0.000E+00	DPM/G
		1.1214E+001	±	1.121E+001	(1)			1.1214E+001	±	1.1214E+001		

STL Richland, SMFractions v4.8.12 Page 4 Record Count: 4

* - Isotope is an Impurity

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	RA22804A110		Ref	7/19/2004		1.0994E+02	± 3.355E+00	DPM/G		
RASC4267	RA-228	**1.1114E+01**	**± 3.394E-01**	DPM	0.134	g	11/20/2006 11/20/2006	Armstron	8.2938E+01	± 2.531E+00	DPM/G
		1.1114E+001	± 1.111E+001	(1)			1.1114E+001	1.1114E+001			

STL Richland, SMFractions v4.8.12 Page 4 Record Count: 4

* - Isotope is an Impurity

Ra22806A000

Ra22806A000
Ref. 6076
448.81 ± 14.82
dpm/g
4/11/2007 DVF

RA22806A.XLW

ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	7/7/2004
3) Source Identification Number / Ref. Number	***new source***		
4) Source Activity (dpm ± dpm/g)	4.5507E+04	±	1.502E+03
5) Percent error of Source Activity	3.3 %		
6) Weight of Source Material used (g)	5.0063		
7) (% Error) of Weight of Source Material used	0.0959 %		
8) Diluent	1M HCL		
9) Total Weight of the Dilution (g)	507.61		
10) (% Error) of Total Weight of the Dilution	0.0591 %		
11) Specific Activity of Diluted Solution dpm/g	***4.4881E+02***	±	***1.482E+01***
12) Total Uncertainty	3.302 %		
13) Dilution Identification Number / Ref. Number	***RA22806A000***		***6076***
14) Calibration Reference Date	12/15/2003		
15) Isotope Inventory File update by/date	tda		3/30/2006
16) Reviewed by/date			
17) Location QCLAB	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ \text{error of Source Activity}^2 + \%\ \text{error of Wt. Used}^2 + \%\ \text{error of Dilution Wt.}^2)}$

Form: CC-006, 7/15/99, Rev 3

SEVERN TRENT SERVICES

ISOTOPE RECORD FORM

1) Isotope: RA-228
2) Reference Number: 6076
3) Half Life: 5.75 yrs
4) Storage Location: QCLAB
5) Source Identification Number: RA22806A000

****

CALIBRATION DATA

6) Activity as Received Units: 3797
7) Overall Uncertainty Percent: 3.30%
8) Reference Date / Time: 15-Dec-03
9) Activity dpm/g: 45507 ± 1502
10) Volume or Mass (ml/g): 5.0063
11) Calibrated by: Analytics
12) Certificate Solution Number: 67328-288

****

SURVEY DATA

13) Date Received: 3/30/2006
14) Surveyed by: tda
15) Survey Reading (Beta/Gamma) cpm: >200 cpm
16) Survey Reading (Alpha) cpm: background

****

17) Activity Conversion: 3797 dps * 60 s/m / 5.0063g =

45507 ± 1501 dpm/g

18) Remarks: From STL Denver

19) Isotope File Updated by: tda
20) QC Approved:

ANALYTICS

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318 · U.S.A.

Phone (404) 352-8677
Fax (404) 352-2837

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

67328-288

Ra-228 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Ra-228
ACTIVITY (dps):	3.797 E3
HALF-LIFE:	5.75 years
CALIBRATION DATE:	December 15, 2003 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: Ra-226 <0.1%
γ-impurities (other than decay products) <0.1%

5.00630 grams 0.8M HCl solution with 20 μg/g Ba carrier.

P O NUMBER 2037799/280260, Item 1

SOURCE PREPARED BY: M. D. Currie
M. D. Currie, Radiochemist

Q A APPROVED: [signature] 12-17-03

RADIUM 228

CONTINUING CALIBRATION

Quality Assurance Report. Generated 17-JAN-2007 08:52:40.82

QA Filename : $DISK1:[QUAD3.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 3a 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 40.799999 Upper Bound : 44.680000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 42.799999 Std Deviation : 0.665207

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK		42.0000	| | |
2-NOV-2006 04:42	CHK		42.4000	| | |
3-NOV-2006 04:47	CHK		42.3000	| | |
4-NOV-2006 04:55	CHK		42.7000	| | |
5-NOV-2006 09:17	CHK		42.9000	| | |
6-NOV-2006 05:14	CHK		42.5000	| | |
6-NOV-2006 05:57	CHK		No Value	| | |
7-NOV-2006 04:48	CHK		42.8000	| | |
8-NOV-2006 04:54	CHK		42.3000	| | |
9-NOV-2006 04:50	CHK		42.8000	| | |
10-NOV-2006 04:55	CHK		43.3000	| | |
11-NOV-2006 07:52	CHK		42.5000	| | |
12-NOV-2006 06:06	CHK		42.1000	| | |
13-NOV-2006 05:08	CHK		42.8000	| | |
14-NOV-2006 04:58	CHK		42.0000	| | |
15-NOV-2006 04:57	CHK		41.7000	| | |
16-NOV-2006 05:28	CHK		42.1000	| | |
17-NOV-2006 04:40	CHK		42.4000	| | |
18-NOV-2006 06:15	CHK		42.1000	| | |
19-NOV-2006 08:52	CHK		42.4000	| | |
20-NOV-2006 04:55	CHK		41.8000	| | |

21-NOV-2006 04:51	CHK	42.3000	| | |
22-NOV-2006 04:44	CHK	42.4000	| | |
23-NOV-2006 06:25	CHK	42.9000	| | |
27-NOV-2006 04:58	CHK	43.4000	| | |
28-NOV-2006 04:41	CHK	42.5000	| | |
28-NOV-2006 04:58	CHK	No Value	| | |
29-NOV-2006 04:52	CHK	41.5000	| | |

-- Multi-Test Full Report --

Description : quad 3b 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 42.869999 Upper Bound : 46.009998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 44.445625 Std Deviation : 0.522434

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK		44.2000	| | |
2-NOV-2006 04:42	CHK		45.3000	| | |
3-NOV-2006 04:47	CHK		44.4000	| | |
4-NOV-2006 04:55	CHK		44.6000	| | |
5-NOV-2006 09:17	CHK		44.4000	| | |
6-NOV-2006 05:14	CHK		44.5000	| | |
6-NOV-2006 05:57	CHK		No Value	| | |
7-NOV-2006 04:48	CHK		44.9000	| | |
8-NOV-2006 04:54	CHK		44.7000	| | |
9-NOV-2006 04:50	CHK		44.7000	| | |
10-NOV-2006 04:55	CHK		44.7000	| | |
11-NOV-2006 07:52	CHK		44.1000	| | |
12-NOV-2006 06:06	CHK		44.4000	| | |
13-NOV-2006 05:08	CHK		45.6000	|In| |
14-NOV-2006 04:58	CHK		43.9000	| | |

15-NOV-2006 04:57	CHK		44.0000	| |	
16-NOV-2006 05:28	CHK		43.5000	| |	
17-NOV-2006 04:40	CHK		43.6000	| |	
18-NOV-2006 06:15	CHK		44.2000	| |	
19-NOV-2006 08:52	CHK		43.8000	| |	
20-NOV-2006 04:55	CHK		44.3000	| |	
21-NOV-2006 04:51	CHK		44.1000	| |	
22-NOV-2006 04:44	CHK		43.7000	| |	
23-NOV-2006 06:25	CHK		43.8000	| |	
27-NOV-2006 04:58	CHK		44.5000	| |	
28-NOV-2006 04:41	CHK		43.9000	| |	
28-NOV-2006 04:58	CHK		No Value	| |	
29-NOV-2006 04:52	CHK		43.8000	| |	

-- Multi-Test Full Report --

Description : quad 3c 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 43.799999 Upper Bound : 47.500000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 45.679291 Std Deviation : 0.594005

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK		45.0000	| | |
2-NOV-2006 04:42	CHK		46.2000	| | |
3-NOV-2006 04:47	CHK		46.4000	| | |
4-NOV-2006 04:55	CHK		46.1000	| | |
5-NOV-2006 09:17	CHK		46.4000	| | |
6-NOV-2006 05:14	CHK		47.5000	|Ac| |
6-NOV-2006 05:57	CHK		46.6000	| | |
7-NOV-2006 04:48	CHK		45.8000	| | |
8-NOV-2006 04:54	CHK		45.7000	| | |
9-NOV-2006 04:50	CHK		46.7000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

10-NOV-2006 04:55	CHK	46.4000			
11-NOV-2006 07:52	CHK	45.8000			
12-NOV-2006 06:06	CHK	45.5000			
13-NOV-2006 05:08	CHK	46.2000			
14-NOV-2006 04:58	CHK	46.0000			
15-NOV-2006 04:57	CHK	45.8000			
16-NOV-2006 05:28	CHK	45.7000			
17-NOV-2006 04:40	CHK	46.3000			
18-NOV-2006 06:15	CHK	45.9000			
19-NOV-2006 08:52	CHK	45.1000			
20-NOV-2006 04:55	CHK	45.7000			
21-NOV-2006 04:51	CHK	45.8000			
22-NOV-2006 04:44	CHK	46.6000			
23-NOV-2006 06:25	CHK	46.1000			
27-NOV-2006 04:58	CHK	46.1000			
28-NOV-2006 04:41	CHK	47.6000	Ab	Ac	
28-NOV-2006 04:58	CHK	45.8000			
29-NOV-2006 04:52	CHK	45.9000			

-- Multi-Test Full Report --

Description : quad 3d 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44.299999 Upper Bound : 47.799999

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 46.038124 Std Deviation : 0.573291

Measurement Time	Sample ID	Sample Analyst	Value	LU	SD	UD	BS Rej
1-NOV-2006 05:27	CHK		46.4000				
2-NOV-2006 04:42	CHK		45.7000				
3-NOV-2006 04:47	CHK		46.2000				
4-NOV-2006 04:55	CHK		46.8000				
5-NOV-2006 09:17	CHK		47.0000				
6-NOV-2006 05:14	CHK		47.0000				
6-NOV-2006 05:57	CHK		No Value				

7-NOV-2006 04:48	CHK	46.9000	| | |
8-NOV-2006 04:54	CHK	47.6000	|In| |
9-NOV-2006 04:50	CHK	46.5000	| | |
10-NOV-2006 04:55	CHK	46.2000	| | |
11-NOV-2006 07:52	CHK	46.1000	| | |
12-NOV-2006 06:06	CHK	45.7000	| | |
13-NOV-2006 05:08	CHK	46.8000	| | |
14-NOV-2006 04:58	CHK	46.0000	| | |
15-NOV-2006 04:57	CHK	47.1000	| | |
16-NOV-2006 05:28	CHK	46.6000	| | |
17-NOV-2006 04:40	CHK	47.3000	|In| |
18-NOV-2006 06:15	CHK	46.7000	| | |
19-NOV-2006 08:52	CHK	46.6000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
20-NOV-2006 04:55	CHK		46.6000	| | |
21-NOV-2006 04:51	CHK		47.0000	| | |
22-NOV-2006 04:44	CHK		46.9000	| | |
23-NOV-2006 06:25	CHK		46.7000	| | |
27-NOV-2006 04:58	CHK		47.1000	| | |
28-NOV-2006 04:41	CHK		46.1000	| | |
28-NOV-2006 04:58	CHK		No Value	| | |
29-NOV-2006 04:52	CHK		46.5000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:52:41.95

QA Filename : $DISK1:[QUAD3.QA]BKG_1.QAF;2

-- Multi-Test Full Report --

Description : quad 3a 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.240319 Std Deviation : 0.080718

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

---

1-NOV-2006 01:30	BKG	0.2100			
2-NOV-2006 01:52	BKG	0.2600			
3-NOV-2006 02:05	BKG	0.2700			
4-NOV-2006 01:35	BKG	0.2600			
4-NOV-2006 23:54	BKG	0.1800			
6-NOV-2006 00:46	BKG	0.1900			
7-NOV-2006 02:30	BKG	0.2200			
8-NOV-2006 02:03	BKG	0.2300			
9-NOV-2006 01:19	BKG	0.2300			
10-NOV-2006 03:55	BKG	0.2000			
11-NOV-2006 01:46	BKG	0.6200	Ac		
11-NOV-2006 21:56	BKG	0.2100			
12-NOV-2006 19:07	BKG	0.2800			
14-NOV-2006 02:24	BKG	0.2800			
15-NOV-2006 03:26	BKG	0.2100			
16-NOV-2006 01:15	BKG	0.2000			
17-NOV-2006 03:16	BKG	0.2000			
18-NOV-2006 01:31	BKG	0.2600			
18-NOV-2006 21:35	BKG	0.2200			
19-NOV-2006 21:17	BKG	0.3100			
21-NOV-2006 02:11	BKG	0.2200			
22-NOV-2006 02:09	BKG	0.2300			
23-NOV-2006 01:23	BKG	0.2800			
23-NOV-2006 16:35	BKG	0.2300			
24-NOV-2006 20:27	BKG	0.2500			
25-NOV-2006 22:27	BKG	0.2200			
26-NOV-2006 14:20	BKG	0.2500			
28-NOV-2006 02:46	BKG	0.2600			
29-NOV-2006 01:50	BKG	0.2000			

-- Multi-Test Full Report --

Description : quad 3b 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Manual

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.261968 Std Deviation : 0.056254

Measurement Time Sample ID Sample Analyst Value LU|SD|UD|BS Rej

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Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 01:30	BKG		0.2200	| | |
2-NOV-2006 01:52	BKG		0.2700	| | |
3-NOV-2006 02:05	BKG		0.2700	| | |
4-NOV-2006 01:35	BKG		0.2700	| | |
4-NOV-2006 23:54	BKG		0.2400	| | |
6-NOV-2006 00:46	BKG		0.2900	| | |
7-NOV-2006 02:30	BKG		0.2600	| | |
8-NOV-2006 02:03	BKG		0.2000	| | |
9-NOV-2006 01:19	BKG		0.3300	| | |
10-NOV-2006 03:55	BKG		0.2400	| | |
11-NOV-2006 01:46	BKG		0.2700	| | |
11-NOV-2006 21:56	BKG		0.2100	| | |
12-NOV-2006 19:07	BKG		0.2900	| | |
14-NOV-2006 02:24	BKG		0.2500	| | |
15-NOV-2006 03:26	BKG		0.2200	| | |
16-NOV-2006 01:15	BKG		0.2900	| | |
17-NOV-2006 03:16	BKG		0.2400	| | |
18-NOV-2006 01:31	BKG		0.2500	| | |
18-NOV-2006 21:35	BKG		0.2400	| | |
19-NOV-2006 21:17	BKG		0.2800	| | |
21-NOV-2006 02:11	BKG		0.2600	| | |
22-NOV-2006 02:09	BKG		0.2900	| | |
23-NOV-2006 01:23	BKG		0.3600	| | |
23-NOV-2006 16:35	BKG		0.2400	| | |
24-NOV-2006 20:27	BKG		0.2600	| | |
25-NOV-2006 22:27	BKG		0.2400	| | |
26-NOV-2006 14:20	BKG		0.2500	| | |
28-NOV-2006 02:46	BKG		0.2800	| | |
29-NOV-2006 01:50	BKG		0.2700	| | |

-- Multi-Test Full Report --

Description : quad 3c 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----

Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.279255 Std Deviation : 0.037036

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 01:30	BKG		0.2500	| | |
2-NOV-2006 01:52	BKG		0.3100	| | |
3-NOV-2006 02:05	BKG		0.2800	| | |
4-NOV-2006 01:35	BKG		0.3400	| | |
4-NOV-2006 23:54	BKG		0.2500	| | |
6-NOV-2006 00:46	BKG		0.3000	| | |
7-NOV-2006 02:30	BKG		0.2600	| | |
8-NOV-2006 02:03	BKG		0.2300	| | |
9-NOV-2006 01:19	BKG		0.2900	| | |
10-NOV-2006 03:55	BKG		0.2600	| | |
11-NOV-2006 01:46	BKG		0.2600	| | |
11-NOV-2006 21:56	BKG		0.2800	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
12-NOV-2006 19:07	BKG		0.2300	| | |
14-NOV-2006 02:24	BKG		0.2600	| | |
15-NOV-2006 03:26	BKG		0.3100	| | |
16-NOV-2006 01:15	BKG		0.3000	| | |
17-NOV-2006 03:16	BKG		0.2800	| | |
18-NOV-2006 01:31	BKG		0.2700	| | |
18-NOV-2006 21:35	BKG		0.2600	| | |
19-NOV-2006 21:17	BKG		0.3000	| | |
21-NOV-2006 02:11	BKG		0.2500	| | |
22-NOV-2006 02:09	BKG		0.3100	| | |
23-NOV-2006 01:23	BKG		0.3500	| | |
23-NOV-2006 16:35	BKG		0.2700	| | |
24-NOV-2006 20:27	BKG		0.2200	| | |
25-NOV-2006 22:27	BKG		0.2500	| | |
26-NOV-2006 14:20	BKG		0.2600	| | |
28-NOV-2006 02:46	BKG		0.2800	| | |
29-NOV-2006 01:50	BKG		0.2600	| | |

-- Multi-Test Full Report --

Description : quad 3d 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Manual

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.233936 Std Deviation : 0.037778

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 01:30	BKG		0.2400	| | |
2-NOV-2006 01:52	BKG		0.2200	| | |
3-NOV-2006 02:05	BKG		0.2600	| | |
4-NOV-2006 01:35	BKG		0.2300	| | |
4-NOV-2006 23:54	BKG		0.2700	| | |
6-NOV-2006 00:46	BKG		0.2200	| | |
7-NOV-2006 02:30	BKG		0.2600	| | |
8-NOV-2006 02:03	BKG		0.2300	| | |
9-NOV-2006 01:19	BKG		0.2000	| | |
10-NOV-2006 03:55	BKG		0.2100	| | |
11-NOV-2006 01:46	BKG		0.2400	| | |
11-NOV-2006 21:56	BKG		0.2700	| | |
12-NOV-2006 19:07	BKG		0.2100	| | |
14-NOV-2006 02:24	BKG		0.2800	| | |
15-NOV-2006 03:26	BKG		0.2200	| | |
16-NOV-2006 01:15	BKG		0.3100	|In| |
17-NOV-2006 03:16	BKG		0.2700	| | |
18-NOV-2006 01:31	BKG		0.2600	| | |
18-NOV-2006 21:35	BKG		0.2400	| | |
19-NOV-2006 21:17	BKG		0.2400	| | |
21-NOV-2006 02:11	BKG		0.2500	| | |
22-NOV-2006 02:09	BKG		0.2200	| | |
23-NOV-2006 01:23	BKG		0.3400	|In| |
23-NOV-2006 16:35	BKG		0.2600	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
24-NOV-2006 20:27	BKG		0.2400	| | |
25-NOV-2006 22:27	BKG		0.2500	| | |
26-NOV-2006 14:20	BKG		0.2400	| | |
28-NOV-2006 02:46	BKG		0.2800	| | |
29-NOV-2006 01:50	BKG		0.2400	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:55:03.34

QA Filename : $DISK1:[QUAD4.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 4a 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 45.700001 Upper Bound : 48.900002

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 47.197559 Std Deviation : 0.539479

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK		46.9000	| | |
2-NOV-2006 04:47	CHK		46.2000	| | |
3-NOV-2006 04:47	CHK		47.4000	| | |
4-NOV-2006 04:55	CHK		47.8000	| | |
5-NOV-2006 09:18	CHK		46.8000	| | |
6-NOV-2006 05:09	CHK		47.1000	| | |
7-NOV-2006 04:43	CHK		46.8000	| | |
8-NOV-2006 04:54	CHK		46.5000	| | |
9-NOV-2006 04:50	CHK		46.4000	| | |
10-NOV-2006 04:55	CHK		46.9000	| | |
11-NOV-2006 07:47	CHK		47.1000	| | |
12-NOV-2006 06:11	CHK		47.2000	| | |
13-NOV-2006 05:08	CHK		48.0000	| | |
14-NOV-2006 05:03	CHK		47.5000	| | |
15-NOV-2006 04:52	CHK		46.6000	| | |
16-NOV-2006 05:28	CHK		46.7000	| | |
17-NOV-2006 04:40	CHK		47.1000	| | |
18-NOV-2006 06:19	CHK		46.5000	| | |
19-NOV-2006 08:53	CHK		47.0000	| | |
20-NOV-2006 04:55	CHK		46.6000	| | |
21-NOV-2006 04:51	CHK		47.9000	| | |

22-NOV-2006 04:44	CHK	47.3000	| | |
23-NOV-2006 06:25	CHK	47.0000	| | |
27-NOV-2006 04:55	CHK	46.9000	| | |
28-NOV-2006 04:41	CHK	46.7000	| | |
29-NOV-2006 04:52	CHK	46.0000	|In| |

-- Multi-Test Full Report --

Description : quad 4b 1" beta %eff
Parameter Units : percent Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 43.250000 Upper Bound : 46.599998

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 44.903660 Std Deviation : 0.550392

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK	44.8000	| | |
2-NOV-2006 04:47	CHK	44.7000	| | |
3-NOV-2006 04:47	CHK	44.6000	| | |
4-NOV-2006 04:55	CHK	44.1000	| | |
5-NOV-2006 09:18	CHK	45.2000	| | |
6-NOV-2006 05:09	CHK	45.4000	| | |
7-NOV-2006 04:43	CHK	45.1000	| | |
8-NOV-2006 04:54	CHK	45.1000	| | |
9-NOV-2006 04:50	CHK	44.6000	| | |
10-NOV-2006 04:55	CHK	45.6000	| | |
11-NOV-2006 07:47	CHK	44.4000	| | |
12-NOV-2006 06:11	CHK	44.7000	| | |
13-NOV-2006 05:08	CHK	44.9000	| | |
14-NOV-2006 05:03	CHK	43.3000	|In| |
15-NOV-2006 04:52	CHK	44.4000	| | |
16-NOV-2006 05:28	CHK	44.7000	| | |
17-NOV-2006 04:40	CHK	44.3000	| | |

18-NOV-2006 06:19	CHK	44.6000	| | |
19-NOV-2006 08:53	CHK	44.0000	| | |
20-NOV-2006 04:55	CHK	44.3000	| | |
21-NOV-2006 04:51	CHK	44.5000	| | |
22-NOV-2006 04:44	CHK	44.6000	| | |
23-NOV-2006 06:25	CHK	43.7000	|In| |
27-NOV-2006 04:55	CHK	45.0000	| | |
28-NOV-2006 04:41	CHK	44.2000	| | |
29-NOV-2006 04:52	CHK	43.8000	|In| |

-- Multi-Test Full Report --

Description : quad 4c 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 41.299999 Upper Bound : 45.400002

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 43.313251 Std Deviation : 0.679174

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK		42.7000	| | |
2-NOV-2006 04:47	CHK		42.9000	| | |
3-NOV-2006 04:47	CHK		43.2000	| | |
4-NOV-2006 04:55	CHK		42.9000	| | |
5-NOV-2006 09:18	CHK		42.7000	| | |
6-NOV-2006 05:09	CHK		43.3000	| | |
7-NOV-2006 04:43	CHK		44.2000	| | |
8-NOV-2006 04:54	CHK		43.1000	| | |
9-NOV-2006 04:50	CHK		43.0000	| | |
10-NOV-2006 04:55	CHK		43.0000	| | |
11-NOV-2006 07:47	CHK		43.1000	| | |
12-NOV-2006 06:11	CHK		43.1000	| | |

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
13-NOV-2006 05:08	CHK		43.3000	| | |

14-NOV-2006 05:03	CHK	42.4000		
15-NOV-2006 04:52	CHK	42.0000		
16-NOV-2006 05:28	CHK	43.7000		
17-NOV-2006 04:40	CHK	41.9000	In	
18-NOV-2006 06:19	CHK	42.5000		
19-NOV-2006 08:53	CHK	42.5000		
20-NOV-2006 04:55	CHK	43.5000		
21-NOV-2006 04:51	CHK	42.8000		
22-NOV-2006 04:44	CHK	42.7000		
23-NOV-2006 06:25	CHK	42.8000		
27-NOV-2006 04:55	CHK	42.7000		
28-NOV-2006 04:41	CHK	43.2000		
29-NOV-2006 04:52	CHK	42.9000		

-- Multi-Test Full Report --

Description : quad 4d 1" beta %eff
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 42.070000 Upper Bound : 45.700001

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 43.883537 Std Deviation : 0.603698

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 05:27	CHK	43.5000		
2-NOV-2006 04:47	CHK	44.2000		
3-NOV-2006 04:47	CHK	43.4000		
4-NOV-2006 04:55	CHK	43.5000		
5-NOV-2006 09:18	CHK	44.1000		
6-NOV-2006 05:09	CHK	43.9000		
7-NOV-2006 04:43	CHK	43.7000		
8-NOV-2006 04:54	CHK	44.5000		
9-NOV-2006 04:50	CHK	44.0000		
10-NOV-2006 04:55	CHK	43.9000		
11-NOV-2006 07:47	CHK	44.2000		
12-NOV-2006 06:11	CHK	44.3000		
13-NOV-2006 05:08	CHK	44.1000		

14-NOV-2006 05:03	CHK		43.9000	| | |
15-NOV-2006 04:52	CHK		44.9000	| | |
16-NOV-2006 05:28	CHK		43.6000	| | |
17-NOV-2006 04:40	CHK		42.9000	| | |
18-NOV-2006 06:19	CHK		42.7000	| | |
19-NOV-2006 08:53	CHK		44.0000	| | |
20-NOV-2006 04:55	CHK		43.4000	| | |
21-NOV-2006 04:51	CHK		43.6000	| | |
22-NOV-2006 04:44	CHK		43.1000	| | |
23-NOV-2006 06:25	CHK		43.6000	| | |
27-NOV-2006 04:55	CHK		43.2000	| | |

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
28-NOV-2006 04:41	CHK		43.3000	| | |
29-NOV-2006 04:52	CHK		42.9000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:55:04.32

QA Filename : $DISK1:[QUAD4.QA]BKG_1.QAF;2

-- Multi-Test Full Report --

Description : quad 4a 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.345842 Std Deviation : 0.075943

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 01:35	BKG		0.2600	| | |
2-NOV-2006 01:52	BKG		0.2700	| | |
3-NOV-2006 02:01	BKG		0.2600	| | |
4-NOV-2006 01:35	BKG		0.2400	| | |
4-NOV-2006 23:56	BKG		0.2200	| | |
5-NOV-2006 23:11	BKG		0.3100	| | |
7-NOV-2006 02:25	BKG		0.3800	| | |

8-NOV-2006 02:04	BKG		0.3200	|	| |
9-NOV-2006 02:50	BKG		0.2300	|	| |
10-NOV-2006 02:45	BKG		0.3100	|	| |
11-NOV-2006 01:46	BKG		0.2900	|	| |
11-NOV-2006 21:56	BKG		0.3700	|	| |
12-NOV-2006 19:13	BKG		0.2800	|	| |
14-NOV-2006 02:49	BKG		0.2300	|	| |
15-NOV-2006 03:26	BKG		0.2500	|	| |
16-NOV-2006 01:15	BKG		0.2600	|	| |
17-NOV-2006 03:16	BKG		0.2700	|	| |
18-NOV-2006 01:26	BKG		0.3200	|	| |
18-NOV-2006 21:42	BKG		0.2500	|	| |
19-NOV-2006 21:12	BKG		0.3700	|	| |
21-NOV-2006 02:11	BKG		0.2500	|	| |
22-NOV-2006 03:40	BKG		0.3200	|	| |
23-NOV-2006 01:23	BKG		0.2500	|	| |
23-NOV-2006 16:41	BKG		0.2900	|	| |
24-NOV-2006 20:22	BKG		0.2300	|	| |
25-NOV-2006 22:32	BKG		0.3000	|	| |
26-NOV-2006 14:21	BKG		0.2400	|	| |
28-NOV-2006 01:36	BKG		0.2800	|	| |
29-NOV-2006 01:55	BKG		0.2900	|	| |

-- Multi-Test Full Report --

Description : quad 4b 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.259471 Std Deviation : 0.053889

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

Quality Assurance Multi-Test Full Report (continued) Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 01:35	BKG		0.2800	| | |
2-NOV-2006 01:52	BKG		0.2700	| | |
3-NOV-2006 02:01	BKG		0.2600	| | |

4-NOV-2006 01:35	BKG		0.2400	| |	|
4-NOV-2006 23:56	BKG		0.3300	| |	|
5-NOV-2006 23:11	BKG		0.2700	| |	|
7-NOV-2006 02:25	BKG		0.2500	| |	|
8-NOV-2006 02:04	BKG		0.2800	| |	|
9-NOV-2006 02:50	BKG		0.2600	| |	|
10-NOV-2006 02:45	BKG		0.2700	| |	|
11-NOV-2006 01:46	BKG		0.2700	| |	|
11-NOV-2006 21:56	BKG		0.2200	| |	|
12-NOV-2006 19:13	BKG		0.2300	| |	|
14-NOV-2006 02:49	BKG		0.2800	| |	|
15-NOV-2006 03:26	BKG		0.2700	| |	|
16-NOV-2006 01:15	BKG		0.2400	| |	|
17-NOV-2006 03:16	BKG		0.2900	| |	|
18-NOV-2006 01:26	BKG		0.2500	| |	|
18-NOV-2006 21:42	BKG		0.2600	| |	|
19-NOV-2006 21:12	BKG		0.2100	| |	|
21-NOV-2006 02:11	BKG		0.2500	| |	|
22-NOV-2006 03:40	BKG		0.3000	| |	|
23-NOV-2006 01:23	BKG		0.3100	| |	|
23-NOV-2006 16:41	BKG		0.2500	| |	|
24-NOV-2006 20:22	BKG		0.2300	| |	|
25-NOV-2006 22:32	BKG		0.2500	| |	|
26-NOV-2006 14:21	BKG		0.2600	| |	|
28-NOV-2006 01:36	BKG		0.2300	| |	|
29-NOV-2006 01:55	BKG		0.2500	| |	|

-- Multi-Test Full Report --

Description : quad 4c 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.264286 Std Deviation : 0.037815

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
1-NOV-2006 01:35	BKG		0.2500	| | | |
2-NOV-2006 01:52	BKG		0.2400	| | | |
3-NOV-2006 02:01	BKG		0.2600	| | | |

4-NOV-2006 01:35	BKG		0.2700	| |	
4-NOV-2006 23:56	BKG		0.3200	| |	
5-NOV-2006 23:11	BKG		0.2100	| |	
7-NOV-2006 02:25	BKG		0.2600	| |	
8-NOV-2006 02:04	BKG		0.2500	| |	
9-NOV-2006 02:50	BKG		0.2700	| |	
10-NOV-2006 02:45	BKG		0.2500	| |	
11-NOV-2006 01:46	BKG		0.2900	| |	
11-NOV-2006 21:56	BKG		0.2500	| |	

Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
12-NOV-2006 19:13	BKG		0.2500	| | |
14-NOV-2006 02:49	BKG		0.2900	| | |
15-NOV-2006 03:26	BKG		0.2600	| | |
16-NOV-2006 01:15	BKG		0.2900	| | |
17-NOV-2006 03:16	BKG		0.3000	| | |
18-NOV-2006 01:26	BKG		0.2700	| | |
18-NOV-2006 21:42	BKG		0.3300	| | |
19-NOV-2006 21:12	BKG		0.2700	| | |
21-NOV-2006 02:11	BKG		0.2900	| | |
22-NOV-2006 03:40	BKG		0.3700	|In| |
23-NOV-2006 01:23	BKG		0.2900	| | |
23-NOV-2006 16:41	BKG		0.2700	| | |
24-NOV-2006 20:22	BKG		0.2000	| | |
25-NOV-2006 22:32	BKG		0.3000	| | |
26-NOV-2006 14:21	BKG		0.2600	| | |
28-NOV-2006 01:36	BKG		0.2800	| | |
29-NOV-2006 01:55	BKG		0.3200	| | |

-- Multi-Test Full Report --

Description : quad 4d 1" beta bkg, cpm
Parameter Units : cpm Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUL-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.266878 Std Deviation : 0.031946

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej

1-NOV-2006 01:35	BKG		0.2700			
2-NOV-2006 01:52	BKG		0.2800			
3-NOV-2006 02:01	BKG		0.2600			
4-NOV-2006 01:35	BKG		0.2500			
4-NOV-2006 23:56	BKG		0.2600			
5-NOV-2006 23:11	BKG		0.3500	In		
7-NOV-2006 02:25	BKG		0.3100			
8-NOV-2006 02:04	BKG		0.3200			
9-NOV-2006 02:50	BKG		0.2500			
10-NOV-2006 02:45	BKG		0.3000			
11-NOV-2006 01:46	BKG		0.3100			
11-NOV-2006 21:56	BKG		0.2400			
12-NOV-2006 19:13	BKG		0.2600			
14-NOV-2006 02:49	BKG		0.3000			
15-NOV-2006 03:26	BKG		0.2200			
16-NOV-2006 01:15	BKG		0.2300			
17-NOV-2006 03:16	BKG		0.2500			
18-NOV-2006 01:26	BKG		0.2700			
18-NOV-2006 21:42	BKG		0.2900			
19-NOV-2006 21:12	BKG		0.3000			
21-NOV-2006 02:11	BKG		0.2600			
22-NOV-2006 03:40	BKG		0.2900			
23-NOV-2006 01:23	BKG		0.3000			
23-NOV-2006 16:41	BKG		0.3000			

Quality Assurance Multi-Test Full Report (continued) Page : 4

Measurement Time	Sample ID	Sample Analyst	Value	LU	SD	UD	BS Rej
24-NOV-2006 20:22	BKG		0.3100				
25-NOV-2006 22:32	BKG		0.3000				
26-NOV-2006 14:21	BKG		0.3000				
28-NOV-2006 01:36	BKG		0.2600				
29-NOV-2006 01:55	BKG		0.3500	In			

RADIUM 226

SAMPLE AND QC DATA

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

12/5/2006 8:26:58 AM

Lot No., Due Date:	J6K060215,J6K060216,J6K060219; 12/01/2006
Client, Site:	536403; AIR MONITORING Yerington Mine
QC Batch No., Method Test:	6325489; RRA2267 Ra-226 by ASC-7
SDG, Matrix:	32992,32993,32994; FILTER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?	✓		

3.0 QC & Samples

	Yes	No	N/A
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?			✓
3.5 Are the sample yields and MDAs within contract limits?	✓		

4.0 Raw Data

	Yes	No	N/A
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?	✓		
4.4 Were spectra reviewed/meet contractual requirements?	✓		
4.5 Were raw counts reviewed for anomalies?	✓		

5.0 Other

	Yes	No	N/A
5.1 Are all nonconformances included and noted?	✓		
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

5.0 Comments on any No response
See NCM

First Level Review Pam Anderson **Date** 12 5 06

SEVERN TRENT **STL**

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 6325489

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

Comments on any "No" response: See NCM

Second Level Review: Sheryl A. Allen Date: 12-5-06

LS-038B, Rev. 10, 8/02

STL RICHLAND

11/22/2006 2:30:20 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,na,11

536403, Brown and Caldwell — Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6325489 FILTER pCi/sampl — PM, Quote: SA , 63174

SEQ Batch Test: 6311396, BXTF

Sep2 DT/Tm Tech:

Prep Tech: WoodT,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On / Off (24hr) Circle	QR Analyst, Init/Date	Comments
9 JH3ML-2-AC J6K060216-4-SAMP	0.833sa,g	503.05sa,g	150.19g,in	0.2487g 7.5311 = 7.24 = 1.0402	RATA24792 11/15/06		9"	1508	11/29/06 [illegible] 11/28/06 1430 CSD 12/2/06 0954	
10/05/2006 09:55		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
10 JH3MM-2-AC J6K060216-5-SAMP	0.833sa,g	500.03sa,g	150.18g,in	0.2502g 7.5118 = 7.381 = 1.0177	RATA24793 11/15/06		G3	1509	11/27/06 [illegible] 11/28/06 1430 DSA 12/2/06 0955	
10/05/2006 10:35		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
11 JH3NN-2-AC J6K060219-1-SAMP	0.833sa,g	500.13sa,g	150.79g,in	0.2512g 7.4829 = 7.21 = 1.0379	RATA24794 11/15/06		9"	1641	11/27/06 [illegible] 11/28/06 1430 EHA 12/2/06 1027	
10/11/2006 10:55		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:
12 JH3NR-2-AC J6K060219-2-SAMP	0.833sa,g	509.38sa,g	150.07g,in	0.2454g 7.4829 = 6.385 = 1.1719	RATA24795 11/15/06		G3	1641	11/27/06 [illegible] 11/28/06 1430 FSA 12/2/06 1026	
10/11/2006 11:10		AmtRec: FILTER		#Containers: 1			Scr:	Alpha:		Beta:

STL RICHLAND

11/22/2006 2:30:21 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

536403 Brown and Caldwell Caldwell

Brown & Caldwell

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6325489 FILTER pCi/sampl PM. Quote: SA , 63174

Sep2 DT/Tm Tech:

SEQ Batch Test: 6311396 BXTP

Prep Tech: WoodT.HarrisonJ

Work Order, Lot Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst Init/Date	Comments
13JH3NT-2-AC J6K060219-3-SAMP	0.833sa,g	500.67sa,g	150.28g,in	0.25g 7.5118 7.02 1.0701	RATA24796 11/15/06		9"	1914 JSB	11/27/06 ON 11/28/06 12/2/06	1430 1028
10/11/2006 11:35		AmtRec: FILTER	#Containers: 1				Scr:	Alpha:		Beta
14JH3NV-2-AC J6K060219-4-SAMP	0.833sa	500.36sa	151.79g,in	0.2527g 7.5214 6.973 1.0786	RATA24797 11/15/06		G13	1914 NMA	11/27/06 ON 11/28/06 12/2/06	1430 1029
10/11/2006 11:00		AmtRec: FILTER	#Containers: 1				Scr:	Alpha		Beta
15JH3NW-2-AC J6K060219-5-SAMP	0.833sa,g	508.75sa,g	150.06g,in	0.2457g 7.4829 7.28 1.0279	RATA24798 11/15/06		9"	1948 QMC	11/27/06 ON 11/28/06 12/2/06	1430 1027
10/11/2006 11:40		AmtRec: FILTER	#Containers: 1				Scr:	Alpha		Beta
16JJ7A2-1-AA-B J6K210000-489-BLK			150.30g,in	150.30g 7.4637 6.797 1.0981	RATA24799 11/15/06		G13	1949 GSB	11/27/06 ON 11/28/06 12/2/06	1430 0953
10/11/2006 11:35		AmtRec:	#Containers: 1				Scr:	Alpha:		Beta

STL Richland Key: in - Initial Amt f - Final Amt di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 4 ISV - Insufficient Volume for Analysis WO Cnt: 16

Richland W pd - Prep Di Reference Ct, ec-Enrichment Cell, ct-Cocktailed Added Prep_SamplePrep v4.8.24

508

STL RICHLAND

11/22/2006 2:30:21 PM

Sample Preparation/Analysis

BX Ra-226/228 PrpRC5016, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Balance Id:1120403183,1120403183,1120

Pipet #:

AnalyDueDate: 11/30/2006

Sep1 DT/Tm Tech:

Batch: 6325489 pCi/sampl

SEQ Batch, Test None

Sep2 DT/Tm Tech:

Prep Tech: ,HarrisonJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments
17JJ7A2-1-AC-C			150.00g,in	150.00g	RASC4267 11/20/06		9	2028	11/27/06	
J6K210000-489-LCS				7.46666						
				7.16					11/28/06	1448
				1.0428					PMA 12/2/06	0956
10/11/2006 11:35		AmtRec:	#Containers: 1			Scr.		Alpha:		Seq

Comments: JH3L5-SAMP "Comments Spike was added to sample. Repoured from filtered surplus and RATA tracer added."

All Clients for Batch:
536403, Brown and Caldwell Brown & Caldwell , SA , 63174

JH3LV2AC-SAMP Constituent List:

Ba-133	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1.00E+00	pCi/sam	LCL:	UCL:	RPD:
JJ7A21AA-BLK:											
Ba-133	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1.00E+00	pCi/sam	LCL:	UCL:	RPD:
JJ7A21AC-LCS:											
Ba-133	RDL:	pCi/sam	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1	pCi/sam	LCL:70	UCL:130	RPD:20

JH3LV2AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JJ7A21AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JJ7A21AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date _____

509

SEVERN TRENT STL

*** RE-ANALYSIS REQUEST ***

DUE DATE 11 30-06

CUSTOMER Brown + Caldwell

ANALYSIS Ra 226

MATRIX filter

LOT NUMBER J6K060219

SAMPLE DELIVERY GROUP NA

OLD BATCH NUMBER 6311395

NEW BATCH NUMBER 63 25489

LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) All	54% LCS.
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
LAB QC ID	Assigned with new batch.

RC-048, 10/03, Rev 7

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-09063**
NCM Initiated By: Pam Anderson
Date Opened: 12/05/2006
Date Closed:

Classification: **Deficiency**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: Ra-226 by ASC-7
Lot #'s (Sample #'s): J6K060215 (1,2,3,4,5), J6K060216 (1,2,3,4,5), J6K060219 (1,2,3,4,5), J6K210000 (489),
QC Batches: 6325489

Nonconformance: Technician Error
Subcategory: Laboratory error: prep error

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	12/05/2006	This batch of Ra 226 in filters had the LCS vial added to the blank. Then the "LCS" only had a 54% recovery. The samples were reanalyzed. The reanalysis.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	12/05/2006	Reanalysis data is acceptable.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

12/5/2006 8:23:16 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/5/2005, 12/10/2006, Batch: '6325489', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
6325489						
AC		CalcC	HarrisonJ	11/22/2006 12:17:49		
SC			andersonp	IsBatched	11/21/2006 2:50:07 PM	ICOC_RADCALC v4.8.24
SC			HarrisonJ	inPrep	11/22/2006 12:17:49 PM	RICH-RC-5005 Revision 5
SC			HarrisonJ	Sep1C	11/27/2006 2:34:39 PM	RICH-RC-5005 REVISION 5
SC			DAWKINSO	inCnt1	11/27/2006 3:22:35 PM	RICH-RD-0007 REVISION 5
SC			DAWKINSO	Cnt1C	11/27/2006 8:51:23 PM	RICH-RD-0007 REVISION 5
SC			PetersonJ	inSep2	11/28/2006 2:36:11 PM	RICH-RC-5005 REVISION 5
SC			StringerR	CalcC	12/2/2006 2:41:52 PM	RICH-RC-5005 REVISION 5
AC			HarrisonJ	11/27/2006 2:34:39		
AC			DAWKINSO	11/27/2006 3:22:35		
AC			DAWKINSO	11/27/2006 8:51:23		
AC			PetersonJ	11/28/2006 2:36:11		
AC			StringerR	12/2/2006 2:41:52 PM		

AC: Accepting Entry, SC: Status Change

12/5/2006 8:23:15 AM

Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	R1st Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Crit Uncert	Received Date / Tot Uncert	Sample Date / Mod	Units	Expected	Yield	Volumes
32992	9JH3L120		J6K0602152	P-0779	FILTER	11/3/2006 10:00:00	10/18/2006 11:30:00 AM				
RA-226	BXTE	1	12/2/2006 12:25:00 PM	1.2993E-01	1.879E-01	1.883E-01	6.977E-01	PCI/SA	1.002	1.0E+0	2.531E-1
32992	9JH3L320		J6K0602153	P-0780	FILTER	11/3/2006 10:00:00	10/18/2006 11:55:00 AM				
RA-226	BXTE	1	12/2/2006 12:24:00 PM	1.2535E-01	1.137E-01	1.144E-01	4.108E-01	PCI/SA	0.915	1.0E+0	2.645E-1
32992	9JH3L520		J6K0602154	P-0781	FILTER	11/3/2006 10:00:00	10/18/2006 11:10:00 AM				
RA-226	BXTE	1	12/2/2006 12:26:00 PM	0.0E+00	0.0E+00	1.454E-01	5.914E-01	PCI/SA	0.99	1.0E+0	2.497E-1
32992	9JH3L620		J6K0602155	000546	FILTER	11/3/2006 10:00:00	10/18/2006 12:00:00 PM				
RA-226	BXTE	1	12/2/2006 12:25:00 PM	-2.1273E-01	1.467E-01	1.482E-01	6.604E-01	PCI/SA	0.948	1.0E+0	2.488E-1
32992	9JH3LV20		J6K0602151	P-0778	FILTER	11/3/2006 10:00:00	10/18/2006 11:05:00 AM				
RA-226	BXTE	1	12/2/2006 12:26:00 PM	1.7381E-01	2.55E-01	2.556E-01	9.234E-01	PCI/SA	0.95	1.0E+0	2.496E-1
TH-228	9NS1	1	11/22/2006 12:45:29	1.5777E-01	1.081E-01	1.109E-01	3.789E-01	PCI/SA	0.86	1.0E+0	3.33E-2
TH-230	9NS1	1	11/22/2006 12:45:29	1.2989E-01	7.805E-02	7.892E-02	2.597E-01	PCI/SA	0.86	1.0E+0	3.33E-2
TH-232	9NS1	1	11/22/2006 12:45:29	4.3295E-02	4.841E-02	4.956E-02	2.597E-01	PCI/SA	0.86	1.0E+0	3.33E-2
32993	9JH3MC20		J6K0602161	P-0769	FILTER	11/3/2006 10:00:00	10/5/2006 9:50:00 AM				
RA-226	BXTE	1	12/2/2006 12:27:00 PM	3.3848E-01	2.828E-01	2.348E-01	9.945E-01	PCI/SA	0.958	1.0E+0	2.5[illegible]
32993	9JH3MJ20		J6K0602162	P-0770	FILTER	11/3/2006 10:00:00	10/5/2006 10:10:00 AM				
RA-226	BXTE	1	12/2/2006 12:55:00 PM	4.5105E-01	1.812E-01	1.874E-01	5.382E-01	PCI/SA	0.883	1.0E+0	2.507E-1
32993	9JH3MK20		J6K0602163	P-0771	FILTER	11/3/2006 10:00:00	10/5/2006 10:30:00 AM				
RA-226	BXTE	1	12/2/2006 12:56:02 PM	3.4611E-01	2.119E-01	2.152E-01	7.171E-01	PCI/SA	0.896	1.0E+0	2.495E-1
32993	9JH3ML20		J6K0602164	P-0772	FILTER	11/3/2006 10:00:00	10/5/2006 9:55:00 AM				
RA-226	BXTE	1	12/2/2006 12:54:00 PM	1.5692E-01	1.862E-01	1.869E-01	6.924E-01	PCI/SA	0.961	1.0E+0	2.487E-1
32993	9JH3MM20		J6K0602165	000544	FILTER	11/3/2006 10:00:00	10/5/2006 10:35:00 AM				
RA-226	BXTE	1	12/2/2006 12:55:00 PM	6.2538E-02	1.628E-01	1.629E-01	6.439E-01	PCI/SA	0.983	1.0E+0	2.502E-1
32994	9JH3NN20		J6K0602191	P-0773	FILTER	11/3/2006 10:00:00	10/11/2006 10:55:00 AM				
RA-226	BXTE	1	12/2/2006 1:27:00 PM	9.6696E-02	2.03E-01	2.033E-01	7.576E-01	PCI/SA	0.963	1.0E+0	2.512E-1
32994	9JH3NR20		J6K0602192	P-0774	FILTER	11/3/2006 10:00:00	10/11/2006 11:10:00 AM				
RA-226	BXTE	1	12/2/2006 1:26:00 PM	6.1967E-01	3.128E-01	3.185E-01	1.017E+00	PCI/SA	0.853	1.0E+0	2.454E-1
32994	9JH3NT20		J6K0602193	P-0775	FILTER	11/3/2006 10:00:00	10/11/2006 11:35:00 AM				
RA-226	BXTE	1	12/2/2006 1:28:00 PM	4.2552E-01	1.822E-01	1.874E-01	5.525E-01	PCI/SA	0.934	1.0E+0	2.50[illegible]
32994	9JH3NV20		J6K0602194	P-0776	FILTER	11/3/2006 10:00:00	10/11/2006 11:00:00 AM				
RA-226	BXTE	1	12/2/2006 1:29:00 PM	4.6104E-01	1.898E-01	1.961E-01	5.863E-01	PCI/SA	0.927	1.0E+0	2.527E-1
32994	9JH3NW20		J6K0602195	000545	FILTER	11/3/2006 10:00:00	10/11/2006 11:40:00 AM				
RA-226	BXTE	1	12/2/2006 1:27:00 PM	2.0542E-01	1.101E-01	1.124E-01	3.451E-01	PCI/SA	0.973	1.0E+0	2.457E-1
32992	JJ7A21AB		J6K210000489	INTRA-LAB BLANK	FILTER	11/3/2006 10:00:00	10/11/2006 11:35:00 AM				
RA-226	BXTE	0 B	12/2/2006 12:53:00 PM	-2.3913E-02	4.32E-02	4.346E-02	1.79E-01	PCI/SA	0.911	1.0E+0	1.0E+0
32992	JJ7A21CS		J6K210000489	INTRA-LAB CHECK	FILTER	11/3/2006 10:00:00	10/11/2006 11:35:00 AM				
RA-226	BXTE	0 S	12/2/2006 12:56:00 PM	1.1936E+00	1.009E-01	2.592E-01	1.161E-01	PCI/SA	1.3556E+00	0.959	1.0E+0	1.0E+0

6325489, **Samples Inserted | Updated | NotUpdated => 16 | 0 | 1,
**Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0
**Dif: RptDb | Qlims =>

Batch Nbr: 6325489

Alpha Beta, Ra-226 by ASC-7 , Results

12/5/2006 8:10:39 AM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	MLcC	IDC	QC	Yield	RYld
Ra-226 by ASC-7				Richland Standard Ra-226/Ra-228 Beem Wo Blk Subt										
Calc	TE	FILTER	JH3LV2AC	RA-226	1.74E-01	(2.56E-01)	U4	PCI/SA	R	4.19E-01	9.23E-01		95%	
Calc	TE	FILTER	JH3L12AC	RA-226	1.30E-01	(1.68E-01)	U4	PCI/SA	R	3.01E-01	6.98E-01		100%	
Calc	TE	FILTER	JH3L32AC	RA-226	1.25E-01	(1.14E-01)	U4	PCI/SA	R	1.63E-01	4.11E-01		92%	
Calc	TE	FILTER	JH3L52AC	RA-226	0.00E+00	(1.45E-01)	U4	PCI/SA	R	2.50E-01	5.91E-01		99%	
Calc	TE	FILTER	JH3L62AC	RA-226	-2.13E-01	(1.48E-01)	U4	PCI/SA	R	2.88E-01	6.60E-01		95%	
Calc	TE	FILTER	JH3MC2AC	RA-226	3.38E-01	(2.85E-01)	U4	PCI/SA	R	4.40E-01	9.95E-01		96%	
Calc	TE	FILTER	JH3MJ2AC	RA-226	4.51E-01	(1.87E-01)		PCI/SA	R	2.20E-01	5.38E-01		89%	
Calc	TE	FILTER	JH3MK2AC	RA-226	3.46E-01	(2.15E-01)	U4	PCI/SA	R	3.12E-01	7.17E-01		90%	
Calc	TE	FILTER	JH3ML2AC	RA-226	1.57E-01	(1.87E-01)	U4	PCI/SA	R	2.86E-01	6.92E-01		96%	
Calc	TE	FILTER	JH3MM2AC	RA-226	6.25E-02	(1.63E-01)	U4	PCI/SA	R	2.66E-01	6.44E-01		98%	
Calc	TE	FILTER	JH3NN2AC	RA-226	9.67E-02	(2.03E-01)	U4	PCI/SA	R	3.35E-01	7.58E-01		96%	
Calc	TE	FILTER	JH3NR2AC	RA-226	6.20E-01	(3.19E-01)		PCI/SA	R	4.34E-01	1.02E+00		85%	
Calc	TE	FILTER	JH3NT2AC	RA-226	4.26E-01	(1.87E-01)		PCI/SA	R	2.26E-01	5.53E-01		93%	
Calc	TE	FILTER	JH3NV2AC	RA-226	4.61E-01	(1.96E-01)		PCI/SA	R	2.49E-01	5.86E-01		93%	
Calc	TE	FILTER	JH3NW2AC	RA-226	2.05E-01	(1.12E-01)		PCI/SA	R	1.31E-01	3.45E-01		97%	
Calc	TE	FILTER	JJ7A21AA	RA-226	-2.39E-02	(4.35E-02)	U4	PCI/SA	R	7.81E-02	1.79E-01	B	91%	
Calc	TE	FILTER	JJ7A21AC	RA-226	1.19E+00	(2.59E-01)		PCI/SA	R	4.74E-02	1.16E-01	S	96%	48%

P Anderson
12-5-06

() - (1s Uncertainties)
IDC - Instrument Detection Level in Conc Units
MLcC - Method Decision Level in Conc Units
MDC - Minimum Detectable Concentration
*Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
All Results Displayed to Three Digits Regardless of Significants
Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCrit 17
RADCALC v4.8.26
STL Richland

Batch Nbr: 6325489

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

12/5/2006 8:10:40 AM

1	12/02/06 12:56	RA-226	25	18	ASCBMC	ASC		N	2.3847E+00	1.0000E+00	N	90%	N		2.0490E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(1.207E-01)	(0.000E+00)		7%			(0.000E+00)	4.007305		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	**0.346111**	U4	2.00000E-01	0.19173	0.19173	1.00 Sa	90%		0.717121		
				(0.215219)		(1.2247E-01)	(0.118804)	(0.118804)	(0.014142)			0.311848		

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
9	Calc	TE	FILTER	*STLE	Ra226WoBS	**JH3ML2AC**	**PCI/SA**		10/05/06 09:55	12/02/06 12:54	11/28/06 14:30	RATA24792	1	1.00 Sa	
CID:P-0772LOT:J6K0602164 v4.8.26							FILTER				12/02/06 09:54	RATA24792 Alq	96%	0.248699 Sa	

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
1	12/02/06 12:54	RA-226	11	9	ASCCSD	ASC		N	1.7270E+00	1.0000E+00	N	96%	N		2.0547E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(5.958E-02)	(0.000E+00)		8%			(0.000E+00)	4.020917		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	**0.156921**	U4	7.00000E-02	0.086632	0.086632	1.00 Sa	96%		0.692448		
				(0.186891)		(8.3066E-02)	(0.10308)	(0.10308)	(0.014142)			0.285643		

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
10	Calc	TE	FILTER	*STLE	Ra226WoBS	**JH3MM2AC**	**PCI/SA**		10/05/06 10:35	12/02/06 12:55	11/28/06 14:30	RATA24793	1	1.00 Sa	
CID:000544LOT:J6K0602165 v4.8.26							FILTER				12/02/06 09:55	RATA24793 Alq	98%	0.250185 Sa	

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
1	12/02/06 12:55	RA-226	9	9	ASCDSA	ASC		N	1.8059E+00	1.0000E+00	N	98%	N		2.0544E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(3.449E-02)	(0.000E+00)		8%			(0.000E+00)	3.997044		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	**0.062538**	U4	3.00000E-02	0.034732	0.034732	1.00 Sa	98%		0.643919		
				(0.162927)		(7.8102E-02)	(0.090468)	(0.090468)	(0.014142)			0.265624		

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
11	Calc	TE	FILTER	*STLE	Ra226WoBS	**JH3NN2AC**	**PCI/SA**		10/11/06 10:55	12/02/06 13:27	11/28/06 14:30	RATA24794	1	1.00 Sa	
CID:P-0773LOT:J6K0602191 v4.8.26							FILTER				12/02/06 10:27	RATA24794 Alq	96%	0.251151 Sa	

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
1	12/02/06 13:27	RA-226	23	24	ASCEHA	ASC		N	2.3636E+00	1.0000E+00	N	96%	N		2.0462E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(1.057E-01)	(0.000E+00)		8%			(0.000E+00)	3.981671		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	**0.096696**	U4	6.00000E-02	0.05391	0.05391	1.00 Sa	96%		0.757628		
				(0.203258)		(1.2596E-01)	(0.113286)	(0.113286)	(0.014142)			0.335339		

() - (1s Uncertainities), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
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 Combinat on 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

RecCnt 12

RADCALC v4.8.26
STL Richland

Batch Nbr. 6325489

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

12/6/2006 8:10:40 AM

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
12	Calc	TE	FILTER	*STLE	Ra226WoBS	JH3NR2AC	PCI/SA		10/11/06 11:10	12/02/06 13:26	11/28/06 14:30	RATA24795	1	1.00 Sa	
CID P-0774LOT J6K0602192 v4.8.26							FILTER				12/02/06 10:26	RATA24795 Alq	85%	0.245413 Sa	

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
1	12/02/06 13:28	RA-226	25	14	ASCFSA	ASC		N	1.6102E+00	1.0000E+00	N	85%	N		2.0464E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(2.979E-02)	(0.000E+00)		7%			(0.000E+00)	4.074765		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	0.619673		2.26667E-01	0.337589	0.337589	1.00 Sa	85%		1.016597		
				(0.318514)		(1.1441E-01)	(0.172633)	(0.172633)	(0.014142)			0.434469		

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
13	Calc	TE	FILTER	*STLE	Ra226WoBS	JH3NT2AC	PCI/SA		10/11/06 11:35	12/02/06 13:28	11/28/06 14:30	RATA24796	1	1.00 Sa	
CID P-0775LOT J6K0602193 v4.8.26							FILTER				12/02/06 10:28	RATA24796 Alq	93%	0.250031 Sa	

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
1	12/02/06 13:28	RA-226	18	8	ASCJSB	ASC		N	2.1011E+00	1.0000E+00	N	93%	N		2.0459E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(7.837E-02)	(0.000E+00)		7%			(0.000E+00)	3.999497		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	0.42552		2.26667E-01	0.23618	0.23618	1.00 Sa	93%		0.552535		
				(0.187365)		(9.7068E-02)	(0.103268)	(0.103268)	(0.014142)			0.225527		

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
14	Calc	TE	FILTER	*STLE	Ra226WoBS	JH3NV2AC	PCI/SA		10/11/06 11:00	12/02/06 13:29	11/28/06 14:30	RATA24797	1	1.00 Sa	
CID P-0776LOT J6K0602194 v4.8.26							FILTER				12/02/06 10:29	RATA24797 Alq	93%	0.2527 Sa	

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
1	12/02/06 13:29	RA-226	25	13	ASCNMA	ASC		N	2.4172E+00	1.0000E+00	N	93%	N		2.0457E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(1.136E-01)	(0.000E+00)		7%			(0.000E+00)	3.957259		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	0.461045		2.83333E-01	0.258629	0.258629	1.00 Sa	93%		0.586287		
				(0.196071)		(1.1667E-01)	(0.109165)	(0.109165)	(0.014142)			0.249194		

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
15	Calc	TE	FILTER	*STLE	Ra226WoBS	JH3NW2AC	PCI/SA		10/11/06 11:40	12/02/06 13:27	11/28/06 14:30	RATA24798	1	1.00 Sa	
CID 000545LOT J6K0602195 v4.8.26							FILTER				12/02/06 10:27	RATA24798 Alq	97%	0.2457 Sa	

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
1	12/02/06 13:27	RA-226	10	4	ASCQMC	ASC		N	2.5030E+00	1.0000E+00	N	97%	N		2.0462E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(1.307E-01)	(0.000E+00)		8%			(0.000E+00)	4.070001		

RecCnt 15 RADCALC v4.8.26

(1) - 1s Uncertainties; Q - Qualifier, U Results Less Than Lc = 1.645 * TPU
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

Batch Nbr: 6325489

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

12/5/2006 8:10:40 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/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/05/06	RA-226	R	0.205417		1.33333E-01	0.112039	0.112039	1.00 Sa	97%		0.345092		
				(0.112385)		(7.1492E-02)	(0.06102)	(0.06102)	(0.014142)			0.130873		

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
16	Calc	TE	FILTER	*STLE	Ra226WoBS	JJ7A21AA	PCI/SA	B	10/11/06 11:35	12/02/06 12:53	11/28/06 14:30	RATA24799	1	1.00 Sa	
CID:INTRA-LAB BLANKLOT J6K210000489 v4.8.26							FILTER				12/02/06 09:53	RATA24799 Alq	91%	1.00 Sa	

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
1	12/02/06 12:53	RA-226	13	19	ASCGSB	ASC		N	2.4088E+00	1.0000E+00	N	91%	N		2.0550E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(9.081E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/02/06	RA-226	R	-0.023913	U4	-5.66667E-02	-0.053085	-0.053085	1.00 Sa	91%		0.179037		
				(0.043462)		(1.0236E-01)	(0.096005)	(0.096005)	(0.173205)			0.078128		

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
17	Calc	TE	FILTER	*STLE	Ra226WoBS	JJ7A21AC	PCI/SA	S	10/11/06 11:35	12/02/06 12:56	11/28/06 14:48	RASC4267	1	1.00 Sa	
CID:INTRA-LAB CHECKLOT J6K210000489 v4.8.26							FILTER				12/02/06 09:56	RASC4267 Alq	96%	1.00 Sa	

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
1	12/02/06 12:56	RA-226	158	8	ASCPMA	ASC		N	2.4525E+00	1.0000E+00	N	96%	N		2.0589E+00	4.5045E-01	1.0001E+00	
			50	60			Y		(8.241E-02)	(0.000E+00)		8%			(0.000E+00)	1.00		

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdC/LcC
	12/02/06	RA-226	R	1.193579		3.02667E+00	2.649597	2.649597	1.00 Sa	96%	88%	0.116068		
				(0.259231)		(2.5578E-01)	(0.320925)	(0.320925)	(0.173205)			0.047375		

(1 = (1s Uncertainty Results) Q = Qualifier U Result is Less Than LC = 1.643 * TPU
IDC Instrument Detection Level in Conc Units MDC 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

RecCnt:1

RADCALC v4.6.26
STL Richland

RADIUM 226

STANDARDS AND TRACEABILITY

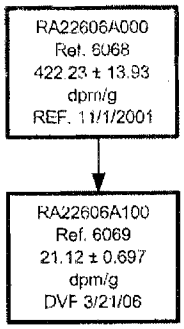
Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	Ra22606A100		Ref:	11/1/2001		2.1060E+01	± 3.234E-01	DPM/G		
RASC4247	RA-226	**3.0661E+00**	**± 4.718E-02**	DPM	0.1459	g	10/18/2006	10/18/2006	Armstron	2.1015E+01	± 3.227E-01	DPM/G
		3.0661E+000	± 3.066E+000	(1)			3.0661E+000 , 3.0661E+000				

* - Isotope is an Impurity

Vial Identifier	Constituent	Prep Activity/Concentration			Std Wt Used		Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration		
	Parent Standard:	Ra22606A100		Ref:	11/1/2001		2.1060E+01	± 3.234E-01	DPM/G		
RASC4267	RA-226	**3.0092E+00**	**± 4.631E-02**	DPM	0.1432	g	11/20/2006	11/20/2006 Armstron	2.1014E+01	± 3.227E-01	DPM/G
		3.0092E+000 ± 3.009E+000 (1)					3.0092E+000 , 3.0092E+000				

* - Isotope is an Impurity

RA22606A


RA22606A000
Ref. 6068
422.23 ± 13.93
dpm/g
REF. 11/1/2001
RA22606A100
Ref. 6069
21.12 ± 0.697
dpm/g
DVF 3/21/06

RA22606.XLW

ISOTOPE DILUTION RECORD

1) Prepared by	tda	2) Date Prepared	10/14/2005
3) Source Identification Number / Ref. Number	***RA22606A000***		***6068***
4) Source Activity (dpm ± dpm/g)	4.2223E+02	±	1.393E+01
5) Percent error of Source Activity	3.3 %		
6) Weight of Source Material used (g)	50		
7) (% Error) of Weight of Source Material used	0.0096 %		
8) Diluent	1 M HNO3		
9) Total Weight of the Dilution (g)	approx. 750 g		
10) (% Error) of Total Weight of the Dilution	0.0400 %		
11) Specific Activity of Diluted Solution dpm/g	***2.1120E+01***	±	***6.970E-01***
12) Total Uncertainty	3.300 %		
13) Dilution Identification Number / Ref. Number	***RA22606A100***		***6069***
14) Calibration Reference Date	11/1/2001		
15) Isotope Inventory File update by/date	tda		3/21/2006
16) Reviewed by/date			
17) Location QCLAB	18) Exhausted		

****

CALCULATIONS

*7) % Error of Wt. used = (0.0048 / Weight of Source Material used * 100)*

*10) % error of Dilution Wt. = (0.3 / Total Weight of Dilution * 100)*

*11) Specific Activity = Source Activity * Wt. of Source Material used / Total Wt. of the Dilution*

12) % Total Uncertainty = $\sqrt{(\%\ error\ of\ Source\ Activity\ ^2 + \%\ error\ of\ Wt.\ Used^2 + \%\ error\ of\ Dilution\ Wt.^2)}$

Form: CC-006, 7/15/99, Rev 3

ISOTOPE RECORD FORM

1) Isotope: Ra-226
2) Reference Number: 6068
3) Half Life: 1600 yrs.
4) Storage Location: qclab
5) Source Identification Number: Ra22606A000

****

CALIBRATION DATA

6) Activity as Received Units: 195.9 pCi/mL
7) Overall Uncertainty Percent: 3.30%
8) Reference Date / Time: 11/1/2001
9) Activity dpm/g: 422.23 dpm/g
10) Volume or Mass (ml/g): 100 mL
11) Calibrated by: IPL
12) Certificate Solution Number: 763-63-7

****

SURVEY DATA

13) Date Received: 3/21/2006 from Denver Lab
14) Surveyed by: tda
15) Survey Reading (Beta/Gamma) cpm: <300 cpm
16) Survey Reading (Alpha) cpm: 0

****

17) Activity Conversion: 195.9 pCi/mL x 2.22 dpm/pCi / 1.025 g/mL = 422.23 dpm/g
18) Remarks: From STL Denver #RA22601AL
19) Isotope File Updated by: tda 3/21/2006
20) QC Approved: J.C. 8/7/06

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

STL# RA22601AL
REC'D 10/25/01

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Ra-226	**Customer:**	SEVERN TRENT LABORATORIES, INC.
Half-life:	1600 ± 7 years	**P.O. No.:**	1173413
Catalog No.:	7226	**Reference Date:**	1-Nov-01 12:00 PST
Source No.:	763-63-7	**Contained Radioactivity:**	0.09795 µCi 3.624 kBq

Physical Description:

A. Mass of solution: 1.15278 g in 1 mL V-Vial
B. Chemical form: $Ra(NO_3)_2$ in 1M HNO_3
C. Carrier content: 10 µg Ba/mL of solution
D. Density: 1.0318 g/mL @ 20°C.

Radioimpurities:

None detected (Daughters not in equilibrium as of 22 Oct 01)

Radionuclide Concentration: 0.08497 µCi/g, 3.144 kBq/g

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in µCi/g was determined using gamma ray spectrometry.
Peak energy used for integration: 186.0 keV
Branching ratio used: 0.0351 gammas per decay

Uncertainty of Measurement:

A. Type A (random) uncertainty: ± 1.3 %
B. Type B (systematic) uncertainty: ± 3.0 %
C. Uncertainty in aliquot weighing: ± 0.4 %
D. Total uncertainty at the 99% confidence level: ± 3.3 %

Notes:

- See reverse side for leak test(s) performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from NCRP Report No. 58, 1985.
- This solution has a working life of 5 years.

Ann U Khan — Quality Control
22-Oct-01 — Date Signed
IPL Ref. No.: 763-63

RADIUM 226

CONTINUING CALIBRATION

Quality Assurance Report. Generated 17-JAN-2007 08:45:38.44

QA Filename : $DISK1:[SCINT14.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-14
Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 17548.000000 Upper Bound : 18645.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-NOV-2006 00:00
Mean : 18183.105469 Std Deviation : 171.183762

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 07:55	count		18444.0000	| | |
16-NOV-2006 07:56	count		18429.0000	| | |
17-NOV-2006 07:55	count		18211.0000	| | |
18-NOV-2006 08:11	count		18695.0000	Ab|In| |
18-NOV-2006 08:25	count		18306.0000	| | |
19-NOV-2006 06:55	count		18197.0000	| | |
20-NOV-2006 07:54	count		18303.0000	| | |
21-NOV-2006 07:55	count		18355.0000	| | |
22-NOV-2006 08:35	count		18106.0000	| | |
25-NOV-2006 07:33	count		18002.0000	| | |
26-NOV-2006 07:26	count		18036.0000	| | |
27-NOV-2006 07:52	count		18255.0000	| | |
28-NOV-2006 08:03	count		18246.0000	| | |
29-NOV-2006 07:54	count		18054.0000	| | |
30-NOV-2006 07:41	count		18130.0000	| | |
1-DEC-2006 06:59	count		18001.0000	| | |
2-DEC-2006 07:21	count		18200.0000	| | |
3-DEC-2006 07:11	count		18351.0000	| | |
4-DEC-2006 07:56	count		17999.0000	| | |
5-DEC-2006 07:58	count		18073.0000	| | |
6-DEC-2006 07:56	count		18003.0000	| | |

7-DEC-2006 07:53	count	17948.0000	| | |
8-DEC-2006 07:53	count	18044.0000	| | |
11-DEC-2006 07:56	count	18436.0000	| | |
12-DEC-2006 07:48	count	17924.0000	| | |
13-DEC-2006 07:17	count	18028.0000	| | |
14-DEC-2006 08:15	count	17860.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:45:38.78

QA Filename : $DISK1:[SCINT14.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-14
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.000000 Std Deviation : 0.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		1.0000	|Ac| |

see STL - email

Quality Assurance Report. Generated 17-JAN-2007 08:45:50.56

QA Filename : $DISK1:[SCINT15.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-15
Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 23918.000000 Upper Bound : 24750.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-NOV-2006 00:00
Mean : 24161.636719 Std Deviation : 235.458450

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 08:11	count		24137.0000	| | |
16-NOV-2006 08:17	count		24192.0000	| | |
17-NOV-2006 08:15	count		24016.0000	| | |
18-NOV-2006 08:40	count		24097.0000	| | |
19-NOV-2006 07:11	count		24083.0000	| | |
20-NOV-2006 08:14	count		23933.0000	| | |
21-NOV-2006 08:19	count		24300.0000	| | |
22-NOV-2006 07:53	count		23993.0000	| | |
25-NOV-2006 07:48	count		24083.0000	| | |
26-NOV-2006 07:39	count		24303.0000	| | |
27-NOV-2006 08:11	count		23809.0000	Be| | |
27-NOV-2006 08:35	count		24007.0000	| | |
28-NOV-2006 08:23	count		23860.0000	Be| | |
28-NOV-2006 08:41	count		24053.0000	| | |
29-NOV-2006 08:15	count		24054.0000	| | |
30-NOV-2006 07:58	count		23970.0000	| | |
1-DEC-2006 07:18	count		23959.0000	| | |
2-DEC-2006 07:34	count		24527.0000	| | |
3-DEC-2006 07:24	count		24268.0000	| | |
4-DEC-2006 08:16	count		23954.0000	| | |
5-DEC-2006 08:18	count		24146.0000	| | |

6-DEC-2006 08:14	count	24453.0000	| | |
7-DEC-2006 08:13	count	23992.0000	| | |
8-DEC-2006 08:11	count	24002.0000	| | |
11-DEC-2006 08:21	count	24063.0000	| | |
12-DEC-2006 08:06	count	23935.0000	| | |
13-DEC-2006 07:33	count	24117.0000	| | |
14-DEC-2006 08:37	count	24154.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:45:50.94

QA Filename : $DISK1:[SCINT15.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-15
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.428571 Std Deviation : 0.534522

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		1.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:45:58.27

QA Filename : $DISK1:[SCINT16.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-16
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 22908.199219 Upper Bound : 23435.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-JAN-2007 00:00
Mean : 23187.943359 Std Deviation : 180.876251

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 07:55	count		23413.0000	| | |
16-NOV-2006 07:56	count		23179.0000	| | |
17-NOV-2006 07:56	count		23265.0000	| | |
18-NOV-2006 08:11	count		23313.0000	| | |
19-NOV-2006 06:55	count		22900.0000	Be| | |
19-NOV-2006 07:09	count		23293.0000	| | |
20-NOV-2006 07:55	count		22969.0000	| | |
21-NOV-2006 07:55	count		23543.0000	Ab| | |
21-NOV-2006 08:19	count		23194.0000	| | |
22-NOV-2006 08:35	count		22923.0000	| | |
25-NOV-2006 07:33	count		23224.0000	| | |
26-NOV-2006 07:26	count		23138.0000	| | |
27-NOV-2006 07:52	count		23331.0000	| | |
28-NOV-2006 08:04	count		23304.0000	| | |
29-NOV-2006 07:54	count		23275.0000	| | |
30-NOV-2006 07:41	count		23012.0000	| | |
1-DEC-2006 07:00	count		23253.0000	| | |
2-DEC-2006 07:21	count		23114.0000	| | |
3-DEC-2006 07:11	count		23141.0000	| | |
4-DEC-2006 07:56	count		23652.0000	Ab|In| |
4-DEC-2006 08:16	count		23295.0000	| | |

5-DEC-2006 07:58	count	23160.0000			
6-DEC-2006 07:56	count	23331.0000			
7-DEC-2006 07:53	count	23513.0000	Ab|		
7-DEC-2006 08:13	count	23470.0000	Ab|		
8-DEC-2006 07:53	count	23328.0000			
11-DEC-2006 07:56	count	23347.0000			
12-DEC-2006 07:48	count	23050.0000			
13-DEC-2006 07:17	count	23258.0000			
14-DEC-2006 08:15	count	23388.0000			

Quality Assurance Report. Generated 17-JAN-2007 08:45:58.66

QA Filename : $DISK1:[SCINT16.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-16
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 2.250000 Std Deviation : 1.035098

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		1.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:05.80

QA Filename : $DISK1:[SCINT18.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-18
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 19816.000000 Upper Bound : 21118.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-AUG-2006 00:00 End Date : 1-NOV-2006 00:00
Mean : 20453.871094 Std Deviation : 182.771866

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 08:11	count		20378.0000	| | |
16-NOV-2006 08:17	count		20629.0000	| | |
17-NOV-2006 08:15	count		20162.0000	| | |
18-NOV-2006 08:25	count		20267.0000	| | |
19-NOV-2006 07:24	count		20480.0000	| | |
20-NOV-2006 08:14	count		20302.0000	| | |
22-NOV-2006 07:54	count		20669.0000	| | |
25-NOV-2006 08:12	count		20269.0000	| | |
26-NOV-2006 07:52	count		20181.0000	| | |
27-NOV-2006 08:10	count		20274.0000	| | |
28-NOV-2006 08:46	count		20682.0000	| | |
29-NOV-2006 08:32	count		20321.0000	| | |
30-NOV-2006 08:16	count		20269.0000	| | |
1-DEC-2006 07:31	count		20166.0000	| | |
2-DEC-2006 07:57	count		20475.0000	| | |
3-DEC-2006 07:36	count		20795.0000	| | |
4-DEC-2006 09:10	count		20489.0000	| | |
5-DEC-2006 08:18	count		20328.0000	| | |
6-DEC-2006 08:14	count		20349.0000	| | |
7-DEC-2006 08:55	count		20407.0000	| | |
8-DEC-2006 08:32	count		20837.0000	|In| |

11-DEC-2006 08:41	count	20812.0000	| | |
12-DEC-2006 08:24	count	20541.0000	| | |
13-DEC-2006 07:50	count	20527.0000	| | |
14-DEC-2006 08:59	count	20565.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:06.18

QA Filename : $DISK1:[SCINT18.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-18
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.428571 Std Deviation : 0.786796

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		0.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:13.90

QA Filename : $DISK1:[SCINT22.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-22
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 75770.000000 Upper Bound : 80044.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 08:09	count		78412.0000	| | |
16-NOV-2006 08:17	count		77432.0000	| | |
17-NOV-2006 08:15	count		77895.0000	| | |
18-NOV-2006 08:45	count		79020.0000	| | |
19-NOV-2006 07:45	count		79074.0000	| | |
20-NOV-2006 08:14	count		78676.0000	| | |
21-NOV-2006 08:19	count		77532.0000	| | |
22-NOV-2006 08:35	count		78258.0000	| | |
25-NOV-2006 08:29	count		80160.0000	Ab| | |
25-NOV-2006 08:40	count		79786.0000	| | |
27-NOV-2006 08:07	count		79482.0000	| | |
28-NOV-2006 08:23	count		79265.0000	| | |
29-NOV-2006 08:15	count		78776.0000	| | |
30-NOV-2006 07:58	count		78403.0000	| | |
1-DEC-2006 08:13	count		80347.0000	Ab| | |
1-DEC-2006 08:24	count		80693.0000	Ab| | |
2-DEC-2006 07:52	count		80013.0000	| | |
3-DEC-2006 07:56	count		80273.0000	Ab| | |
3-DEC-2006 08:11	count		79622.0000	| | |
4-DEC-2006 08:16	count		78919.0000	| | |
5-DEC-2006 08:18	count		78516.0000	| | |
6-DEC-2006 08:14	count		78752.0000	| | |
7-DEC-2006 08:13	count		79365.0000	| | |
8-DEC-2006 08:11	count		78818.0000	| | |
11-DEC-2006 08:21	count		78506.0000	| | |
12-DEC-2006 08:24	count		78246.0000	| | |
13-DEC-2006 08:18	count		79282.0000	| | |

14-DEC-2006 08:37 count 78792.0000 | | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:14.61

QA Filename : $DISK1:[SCINT22.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-22
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.250000 Std Deviation : 0.462910

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		0.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:21.50

QA Filename : $DISK1:[SCINT23.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-23
Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 77893.000000 Upper Bound : 82471.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 80182.328125 Std Deviation : 763.039856

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 07:51	count		80137.0000	| | |
16-NOV-2006 07:56	count		81225.0000	| | |
17-NOV-2006 07:56	count		80812.0000	| | |
18-NOV-2006 08:07	count		81230.0000	| | |
19-NOV-2006 06:48	count		81769.0000	|In| |
20-NOV-2006 07:55	count		81254.0000	| | |
21-NOV-2006 07:56	count		81768.0000	|In| |
22-NOV-2006 07:54	count		81988.0000	|In| |
25-NOV-2006 07:25	count		82439.0000	|In| |
26-NOV-2006 07:22	count		82009.0000	|In| |
27-NOV-2006 07:52	count		81775.0000	|In| |
28-NOV-2006 08:04	count		82109.0000	|In| |
29-NOV-2006 07:54	count		82279.0000	|In| |
30-NOV-2006 07:37	count		82264.0000	|In| |
1-DEC-2006 06:56	count		82591.0000	Ab|Ac| |
1-DEC-2006 07:15	count		82478.0000	Ab|Ac| |
2-DEC-2006 07:06	count		81477.0000	| | |
3-DEC-2006 07:07	count		82196.0000	|In| |
4-DEC-2006 07:56	count		82013.0000	|In| |
5-DEC-2006 07:59	count		82190.0000	|In| |
6-DEC-2006 07:56	count		82409.0000	|In| |

7-DEC-2006 07:54	count	82228.0000	|In| |
8-DEC-2006 07:53	count	82463.0000	|In| |
11-DEC-2006 07:56	count	82279.0000	|In| |
12-DEC-2006 07:48	count	82527.0000	Ab|Ac| |
12-DEC-2006 08:06	count	82075.0000	|In| |
13-DEC-2006 07:13	count	81574.0000	| | |
14-DEC-2006 08:16	count	81668.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:21.87

QA Filename : $DISK1:[SCINT23.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-23
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 4.428571 Std Deviation : 3.631365

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		0.0000	| | |

Quality Assurance Report. Generated 17-JAN-2007 08:46:28.86

QA Filename : $DISK1:[SCINT24.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-24
Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 44810.000000 Upper Bound : 47071.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JAN-2006 00:00 End Date : 1-JUL-2006 00:00
Mean : 45940.640625 Std Deviation : 376.874664

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
15-NOV-2006 07:51	count		46172.0000	| | |
16-NOV-2006 07:57	count		46099.0000	| | |
17-NOV-2006 07:56	count		45862.0000	| | |
18-NOV-2006 08:28	count		46322.0000	| | |
19-NOV-2006 07:16	count		46347.0000	| | |
20-NOV-2006 07:55	count		46614.0000	| | |
21-NOV-2006 07:56	count		46715.0000	|In| |
22-NOV-2006 07:54	count		47122.0000	Ab|Ac| |
22-NOV-2006 08:35	count		46850.0000	|In| |
25-NOV-2006 07:51	count		46807.0000	|In| |
26-NOV-2006 07:50	count		46869.0000	|In| |
27-NOV-2006 07:52	count		47117.0000	Ab|Ac| |
27-NOV-2006 08:07	count		47119.0000	Ab|Ac| |
28-NOV-2006 08:04	count		46576.0000	| | |
29-NOV-2006 07:54	count		46430.0000	| | |
30-NOV-2006 07:37	count		46721.0000	|In| |
1-DEC-2006 07:24	count		47228.0000	Ab|Ac| |
1-DEC-2006 07:36	count		47439.0000	Ab|Ac| |
2-DEC-2006 07:39	count		47012.0000	|In| |
3-DEC-2006 07:27	count		46890.0000	|In| |
4-DEC-2006 07:56	count		46775.0000	|In| |

← see STL email

5-DEC-2006 07:59	count	46932.0000	|In| |
6-DEC-2006 07:56	count	46717.0000	|In| |
7-DEC-2006 07:54	count	46696.0000	|In| |
8-DEC-2006 07:53	count	47129.0000	Ab|Ac| |
8-DEC-2006 08:11	count	46755.0000	|In| |
11-DEC-2006 07:57	count	46732.0000	|In| |
12-DEC-2006 07:48	count	46905.0000	|In| |
13-DEC-2006 07:39	count	46958.0000	|In| |
14-DEC-2006 08:16	count	46737.0000	|In| |

Quality Assurance Report. Generated 17-JAN-2007 08:46:29.25

QA Filename : $DISK1:[SCINT24.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-24
Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----
Lower Bound : 0.000000 Upper Bound : 5.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Sample Driven N-Sigma Test Parameters ----
Start Date : 1-JUN-2005 00:00 End Date : 1-JAN-2006 00:00
Mean : 0.142857 Std Deviation : 0.377964

Measurement Time	Sample ID	Sample Analyst	Value	LU|SD|UD|BS Rej
22-NOV-2006 15:30	count		0.0000	| | |